

COMMERCIAL CAR JOURNAL

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EDITORIAL CONTENTS

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Feature Articles

The CCC—A Truck Driver Training School.....	14
Good Housekeeping is Good to the Last Shop.....	16
Get Hop to Hypoids	18
Private Life of a Brake Drum.....	20
Shop Hints from Fleet Shops.....	22
A Round Up of Disk Brake Service Data.....	23
Centralizing the Shop Makes Service Sense.....	24
The Album	26
What Are the Weakest Links in the Ignition System?	28
Pasteurized Pulchritude	29
1935-1936 Fleet Safety Statistics	32

Departments

The Overload	11
Ears to the Ground	13
After Hours	30
New Products on Parade	32
New Truck Registrations by Makes by Months.....	32
News	38
Commercial Car Journal Truck Specifications Tables	49
Free Money Makers for You	85
Advertisers' Index	116

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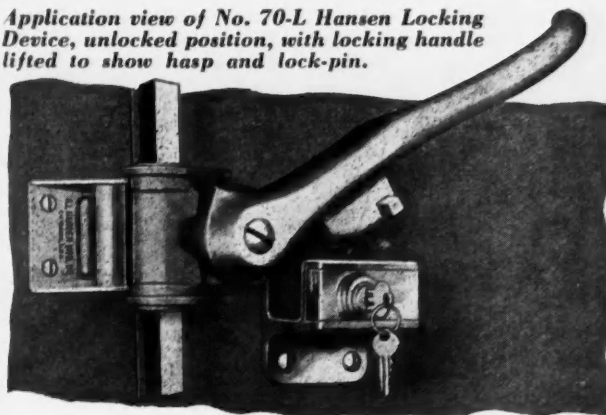
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COMMERCIAL CAR JOURNAL
OCTOBER, 1936

Application view of No. 70-L Hansen Locking
Device, unlocked position, with locking handle
lifted to show hasp and lock-pin.



HANSEN LOCKING DEVICE for Refrigerator Locks

NOW! A tamper-proof method for securely locking
refrigerator door locks. It's the No. 70-L Hansen
Locking Device. It has a variety of key combinations.
It is used with the Hansen Refrigerator Locks shown.

Can't Be Tampered With!

Tamper-proof! Steel lock-pin, when locked in place,
can't be tampered with. Pin sets inside the flange of
Locking Device and can't be reached when locked.

Replaceable Cylinder

Cylinder can be removed and re-
placed, and a new key combination
used, without otherwise changing
Locking Device.

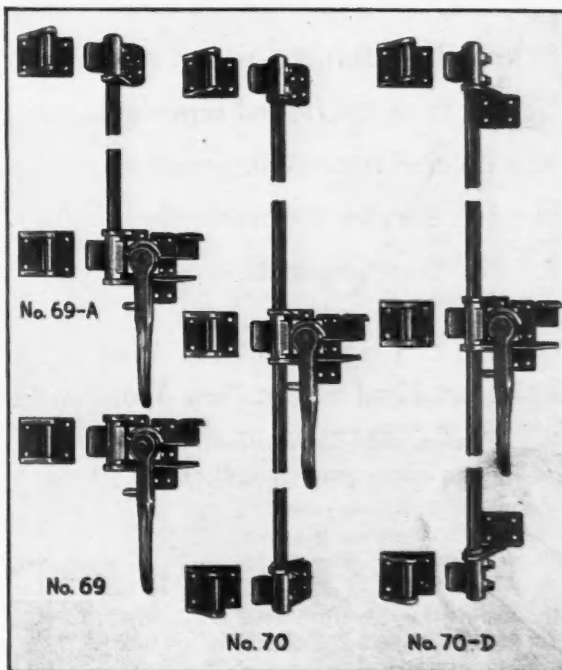
Ask for Details

A. L. HANSEN MFG. CO.

5047 Ravenswood Ave., CHICAGO



Hansen Locks on which Locking Device may be used



For lower Winter

FOR many years Texaco-Trained men have helped truck fleet operators reduce their lubrication and repair costs. The Texaco-Trained man knows intimately the products he has to sell . . .

But more than that . . .

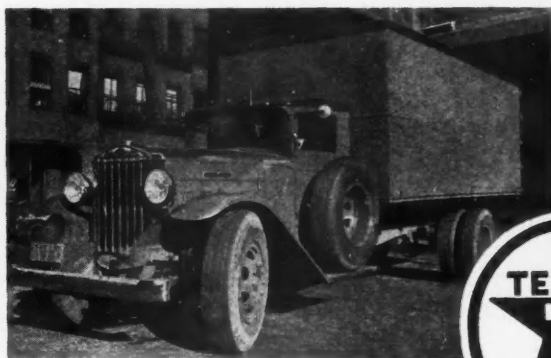
He knows the problems you have to face in winter lubrication. He can go out in your shops . . . examine your equipment . . . and recommend the exact grade of New Texaco Motor Oil, Texaco Marfak, and Thuban that will help you make further reductions in your operating costs this winter.

One of the results of this cooperation is evident in the fact that users of Texaco Lubricants and Fuels have won ten of the Bus Maintenance Awards during the past six years.

The Texaco-Trained representative will be glad to provide practical engineering service to prove the economies of these products.

THE TEXAS COMPANY
135 East 42nd Street, New York City

*Nation-wide distribution facilities
assure prompt delivery*



TEXACO

COMMERCIAL CAR JOURNAL
OCTOBER, 1936

The



COMMERCIAL CAR JOURNAL

Vol. LII. No. 2 OCTOBER, 1936

Overload

Et Tu, Anthony

There's no Anthony operating cost article in this issue and here's the Western Union reason: "Recent illness has prevented completion of third article in time for October issue stop will forward manuscript to you shortly to be used in your December issue stop receiving numerous comments on articles to date regards C G ANTHONY." For your information the December issue is specified because we won't have space for it in the November number, which will be a Transportation Show. Just that, a Transportation Show that will come right to your desk, your bench, your home or wherever you receive CCJ.

Re CCC—Not the Pills

We hope you like our approach to the CCC (Civilian Conservation Corps) article on page 14. Staffman Gerstin spent two days in Washington on it interviewing half a dozen men in the Forest Service and rooting through library and office files for material. We want to acknowledge the splendid coopera-

tion of the Forest Service men. They turned to with a will when they heard what sort of article we wanted. And if you turn to it with a will you won't be disappointed.

A Hint About Hints

It is a pleasure to report that we are making a bit of progress in getting fleet men to submit Shop Hints, page 22 this issue. However, even at \$5 a hint which, we think, is no sign of stinginess on our part, we are not being flooded with ideas. For years this failure of fleet men to cash in on Shop Hints has puzzled us. Personally, we have only to walk into 10 fleet shops and come out of five of them with ideas that will help others. Say, don't you fleet men want our money? Or are you too close to your work to realize that many of the practices that are routine to you would be original to hundreds of others? Come on, look around and let us have those shop practices that you originated and are proud of. Send us a picture or a rough sketch (we have the artists to



Everette Baldwin who drives the Sanders furniture van shown in the Album, page 27, has just completed a 16-year trek at the wheel driving half a million miles without an accident

pretty them up) and a brief explanation in your own words (we have editors to pretty them up).

Balanced Diet

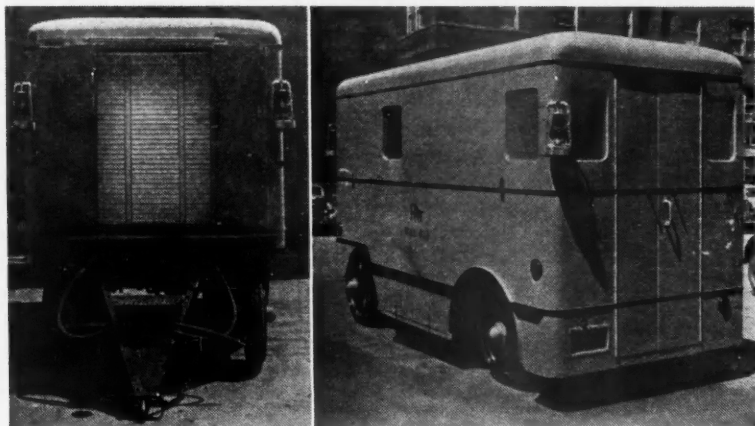
We think this issue is one of the best balanced issues we have put out in months. It is spiced with variety and swims in a rich creamy sauce of practical helpfulness. We feel like saying something about each article but lacking the space for our say we must content ourselves with a blanket recommendation and a gilt-edged guarantee. With just one reminder: the semi-trailer and third axle specifications corrections are on page 58. Complete tables will be published again in December.

Vice-Presidents

Among the S.A.E. nominees for 1937 we note with partisan pleasure the names of John M. Orr, general manager, Equitable Auto Co., Pittsburgh, and Stephen Johnson, Jr., chief engineer, Bendix-Westinghouse Automotive Air Brake Co. John will be vice-president of the Transportation and Maintenance Activity, and Steve vice-president of the Truck, Bus and Railcar Activity. Good luck, youse guys.

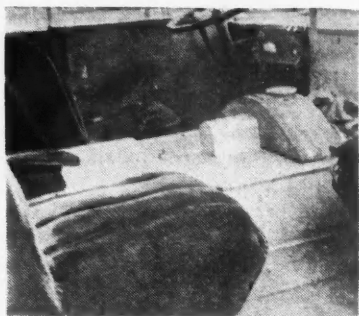
Truck History

A good-will Dodge is now somewhere on the road between Ottawa, Canada, and Mexico City blazing an international truck trail. Blazing may not be quite the word because the trip will be leisurely, taking 15 days or more. The driver on the 7000 mile run to Mexico and back to Detroit is Al Radero, 500,000-mile no-accident driver of U. S. Truck Co., Detroit. Safety first, señor; no watcha da dark-eyed señoritas.



Engineers of the Trailer Co. of America and the Philadelphia Rapid Transit Co. put their heads together and this smart looking tool trailer was the result. It is a four-wheel, circle-steer Trailmobile with special Utility Truck Equipment Co. body. Interior has tool and parts bins. A special compartment in the front-end provides space for hanging clothes and storing lunch boxes. It is reached by a step built on the draw bar. Note roll-type door

The Overload



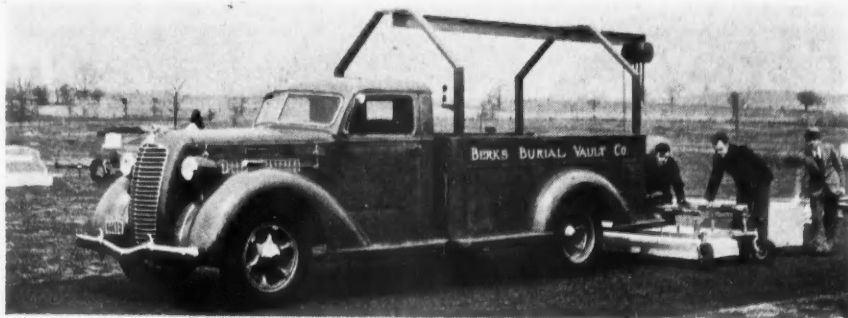
Primp Up and Profit is the motto of Trucker Fred Weh, Jr., Garwood, N. J., so he designed this body and had it built in his own garage. Load space is 22 ft. long by 7 ft. wide by 8 ft. 3 in. Seven-room capacity. Base color, orange; lettering and striping, black; roof, aluminum paint. Cab interior is shown

FREE

This isn't a straw-vote ballot to lower your taxes but an X in the right block may help you to pay your share of the white man's burden. Mail, as usual to The Editor, Commercial Car Journal, Philadelphia, Pa.

- ☐ A—Particulars on Ford Camel-back Conversion, p. 13
- ☐ B—Repaint Manual, 32 pp., priced 50 cents but free to you
- ☐ C—Truck Selector—an easy way to pick the right truck
- ☐ D—Bearing Manual, 32 pp.—to tell you when a bearing needs replacement
- ☐ E—Two new Diesel Booklets by Cummins
- ☐ F—Snow Plow Catalog and Handbook
- ☐ G—Bendix-Westinghouse Instruction Book—for air brake users only

Name
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 Firm Name
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 City
 No. Trucks No. Cars



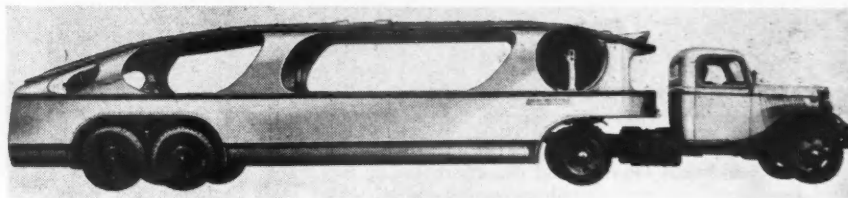
Here's how the Berks Burial Vault Co. handles stones and monuments. The Deluxe Diamond T 1 1/2-ton model has a drop-panel body with load-beam and hoist

Female of the Species

Are men better drivers than women? Somebody seems to care because every now and then, somewhere or other, the controversy pops up. The conclusions are never satisfactory because ample figures are never presented to support them. At the risk of being accused of heresy, a traitor to the sex, a feminist or a snake-in-the-grass we present figures submitted by a large and reputable fleet which give the women an edge. In giving us the figures, the fleet manager made these assertions: (1) the subject was too controversial for him to want his company identified with the figures; (2) in his opinion the figures weren't worth the paper they were written on, but (3) they were better than the guesswork of controversialists, which raises his ire to the boiling point. Here is his evidence:

... Is Less Deadly?

Considering passenger-car mileage only, 885 males drove 8,248,378, an average of 9320 per driver; they had 132 accidents which, reduced to safety factors, gave 62,487 miles per accident, and a rate per 100,000 miles of 1.6. Females numbering 51 drove 431,246 miles, an average of 8455 per driver; they had 4 accidents, giving them 107,811 miles per accident and a rate per 100,000 miles of .928. The one thing to be remembered in connection with these statistics is that the females are commercial women drivers, and that the company involved insists upon a certain degree of driving skill before it turns a car over to an employee. So what? So, on with the controversy and see where it gets you.



New streamline four-car capacity trailer built by Mechanical Handling Systems, Inc., Detroit. Comes within 40-ft. overall limitation

Oil Men, Help!

L.W. HESS, fleet superintendent of the Mid-Continent Petroleum Corp. branch at Waterloo, Iowa, would like to know what other oil fleets are using in the way of 500-gal. tanks which will accommodate both an oil barrel and a grease barrel and include compartments for accessories. He'd like to see some designs, too. He's not interested in skirt styling.

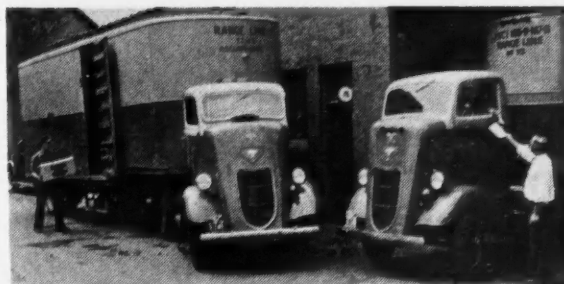
Sales Manager Wanted

A TRUCK company that has been in the export field for quite some time is planning to enter the domestic market. It needs a high type of sales manager to take care of the entire distribution of the domestic line. If the prospect looks inviting to any of our executive readers we will be glad to direct confidential correspondence into the proper channels.

Whoa There, Winchell!

IN his nationally syndicated column dated September 23, Walter Winchell tossed some stale scallions at New York truck drivers who, he said, go through hospital quiet zones "with their cut-outs wide open." It's so long since cut-outs were made for trucks that Walter won't remember when they were. We don't believe Walter has ever heard a truck with its cut-out wide open. Will one of the truck branches in New York City take the muffler off a 500-cu. in. job and invite Walter over to listen so that, if his ear drums stand up under the deafening bombardment, he can recognize a cut-out when he hears it?

Cars to the GROUND



This attractive cab-over-engine conversion of a Ford V8 is the brain-child of an Indianapolis, Ind. concern, and is designed to fit any V8 1½-ton chassis. Adaptation is accomplished without changing control positions and will permit removal of the engine through the front. Loading space is increased 50 per cent on the 131-in. wheel-base and 40 per cent on the 157-in. wheel-base. The 131-in. chassis can be converted to 112-in. with Ross steering, front wheel hub to rear of cab is 43 in. If you are interested check "A" on the coupon page 12

Axle Axiom

Crawling from under a trailer one of our operatives rushed into communication with this office. His hurried efforts make it possible to apprise you of a compensating axle which permits trailer tires to follow road contours and makes it possible to compensate for unequal braking on inner and outer tires. We shall be more detailed in our treatment of the subject next month.

Another Affidavit

Next month CCJ will have its hands full describing all of the new products for your benefit. This department hereby promises to have full details on a new line of camel-backs produced by White and designed by Count Sakhnoffsky. We shall also try to get you the details on International's new camel-back.

Diamond-T Diesel

This department is always glad to oblige a manufacturer as well as its readers. Now in the capacity of a messenger boy we deliver to you information that Diamond-T will have a light Diesel truck on display at the Chicago show.

Body Brainchild

The first item that caused this department's eyebrows to raise this month is



The new Hug cab-over-engine Model 43 makes its appearance equipped with a Buda K428 six-cylinder engine, a five-speed transmission, a two-speed auxiliary transmission and a double reduction rear axle

notice that a truck body has been designed along with all of the other units necessary to make the body mount with equal ease upon the truck chassis or a railroad car. The body is designed to carry general merchandise in shipments and what is truly amazing is the fact that the body with its load can be transferred from the truck to railroad car without cranes, skids, etc.

Baby's Birthday

Not far off, one of our spies learns, is the birth date of a new light pick-up and delivery truck which will be primarily a passenger car chassis. The new arrival will be the baby of an already illustrious truck family.

Gas-Saving Gadget

Two manufacturers are ganging up under cover. One has a dual manifold which is being adapted to our most popular vehicles, and not being satisfied with the results of the manifold alone this manufacturer is being aided and abetted by a carburetor manufacturer who is developing a special carburetor to go with this manifold. Together these two manufacturers have determined that the gasoline saving they have to sell is about 30 per cent.

Head Harbinger

New cylinder heads seem to be coming thick and fast. Most of them involve new materials so far as cylinder heads are concerned. The purpose is to get better combustion characteristics as well as lower cost of manufacture. If successful the fleet operator should have more satisfactory experience with fuel economy and power output.

Departmental Duties

This department takes itself seriously and it feels duty bound to answer if possible any inquiries which arrive via Mr. Farley's footmen. Just imagine our chagrin when we were confronted with several fleet inquiries relative to the manufacturers of one-wheel trailers for attaching to the back of passenger cars so that tools, etc., can be carried for repairs on the road. Come to think of it we have also been mildly discomfited by inquiries for light two-wheel trailers of the same type. If some of our readers in whom we have a great

deal of faith will supply us with names of manufacturers of this type of equipment we will be able to answer these letters and turn our mind to other things.

Indiana Industry

While our man was sojourning on the banks of the Wabash, he made the subject of another report the fact that a company from whom we have heard nothing for a long time was fairly humming with activity again. Truck wheels and semi-trailers were the source of the pleasant sound.

Bigger Beam

One of the light passenger cars that fall into the economy class and its companion pick-up truck will desert its narrow gage design and will come to a standard tread for 1937 models.

Goblet Gearbox

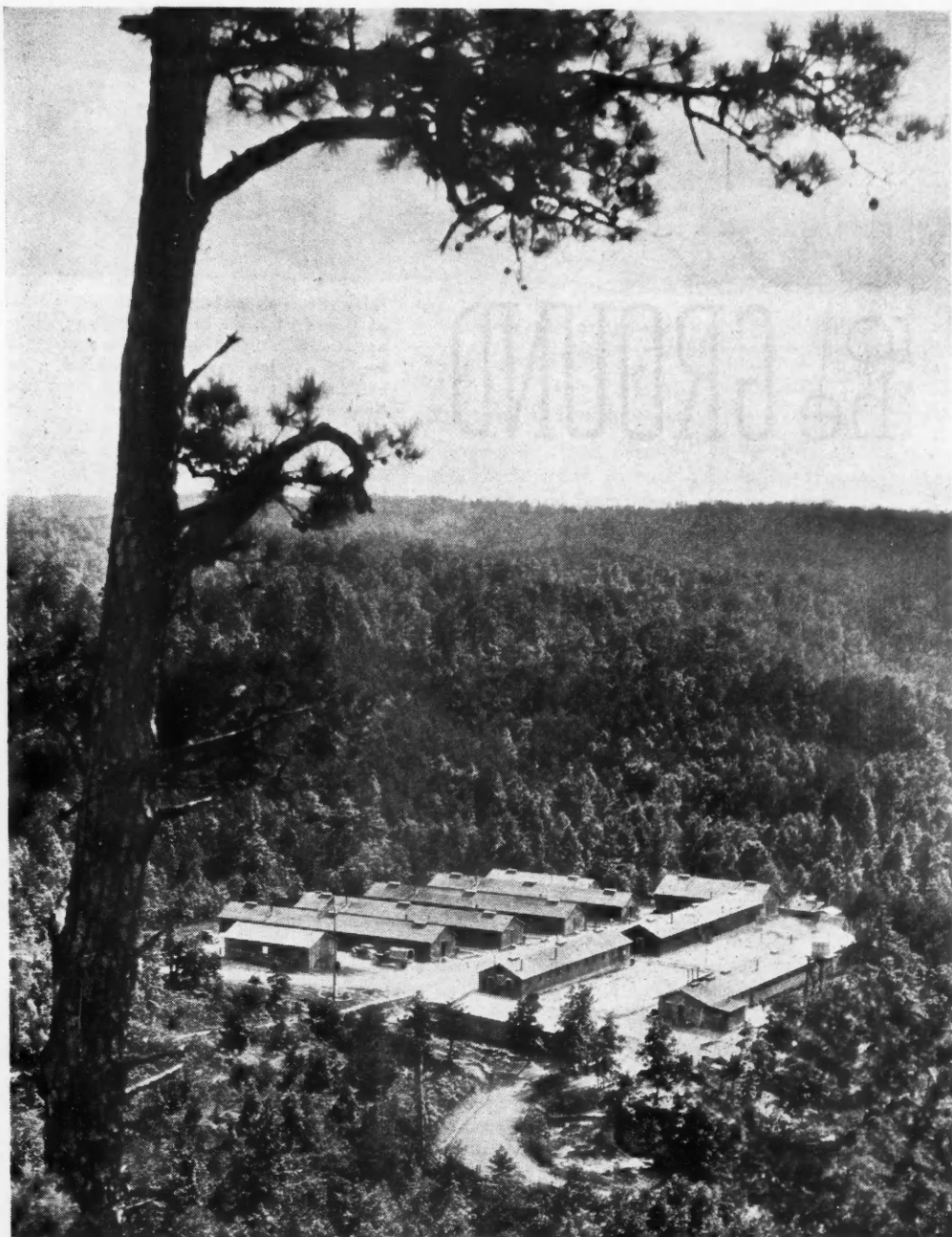
From the West comes word for this department to look as if it knew it all the time if one of the passenger car manufacturers announces a fluid transmission. Our basic honesty gets the best of us and we shall act in no such deceitful manner. So we give you the information as a warning and not as a prediction.

Frame Flection

From flat on his back one of our correspondents informs us that the view looking upwards shows clearly that the I-beam X-frame with welded sections will gain some new converts this year among passenger car manufacturers.

Dodge Delivers

Just in time to get under the wire for this issue come important details on the Dodge-Montpelier camel-back. This construction is available on the LF, 1-1½ ton line with prices beginning at \$1145. A 12 ft. body is permitted on a 129½ in. wheel-base. Dodge offers the whole LF series in this construction with heavy duty appliances and appurtenances.



WHEN the government at Washington established the first CCC camp (Civilian Conservation Corps) at Luray, Va., April 17, 1933, it not only set the stage for the 2175 camps that have since mushroomed in various sections of the country, but also undertook, willy-nilly, the operation of the country's largest truck fleet now numbering 22,000 to 24,000 units, to say nothing of 14,000 tractors, and also, but not quite so inadvertently, it undertook the training of thousands of CCC enrollees in the practical art of automotive maintenance and truck driving—safely and efficiently. The government thus placed itself in the role of operating informal graduate schools for truck drivers and mechanics and has thus far succeeded in placing groups of young men with commercial fleet operators as drivers and helpers and mechanics' helpers.

Although no accurate records are kept by the CCC of the exact number of enrollees trained as truck drivers nor of the number who obtain jobs as

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CCC

A Truck

By

**STANLEY
GERSTIN**

2175 Camps With

COMMERCIAL CAR JOURNAL
OCTOBER, 1936

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drivers after leaving the camps, unofficial reports from various camps indicate that the number is not to be sniffed at. One California camp alone recently reported that out of one group of 48 graduated enrollees who found jobs, 16 succeeded in landing jobs with truck fleets. No doubt the number thus finding jobs would be a revelation if all camps reported.

THERE is no question in the mind of Harry R. Kylie, who is in charge of Safety and Education in the CCC camps under the jurisdiction of the Forest Service, which includes about half of all CCC camps, that enrollees who succeed in completing a six or 12-month stretch as truck drivers with a clean slate, are well qualified to continue as efficient drivers and helpers for commercial fleets.

Fleet operators interested in obtaining information on prospective truckmen need only communicate with the superintendent of the nearest CCC camp for a reliable record of camp drivers. Of course, the appointed godfather of the CCC, who is Director Robert Fechner of the ECW (Emergency Conservation Work), under whose protective wing the CCC falls, would gladly advise fleetmen and automotive men of the availability of skilled CCC enrollees for fleet jobs.

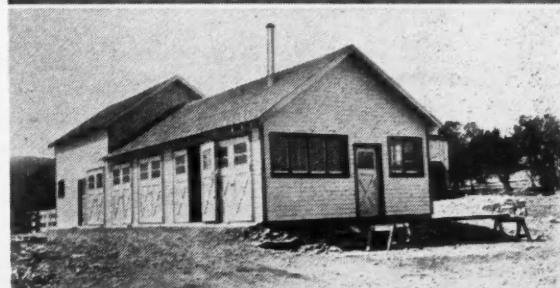
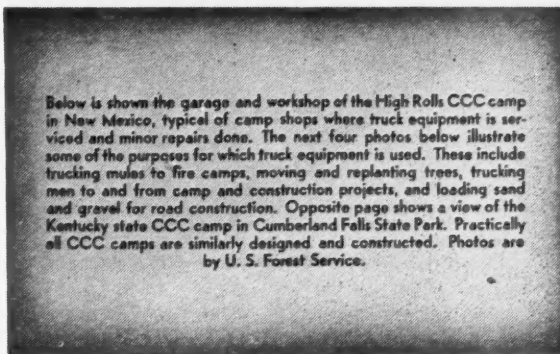
SELECTION and training of drivers is just as serious a problem with the CCC as in other fleets. Enrollees who claim experience as drivers are given first choice. Driving tests are given by camp commanders or project supervisors and consist of a practical demonstration as well as of a series of questions and answers. During driving tests, trucks must be handled under load, on hills, narrow turns, etc.

Enrollees who express a desire to learn to drive are given instruction by competent camp instructors and are gradually permitted to drive under favorable conditions until judged qualified for a regular driving berth.

Various methods are employed to keep drivers safe such as the customary safety posters and bulletins issued from Washington. The major safety program, however, has two divisions: elimination of physical hazards, and minimizing of human hazards. The former consists of education in the use of safety equipment, proper inspection of vehicles and general good-housekeeping practices.

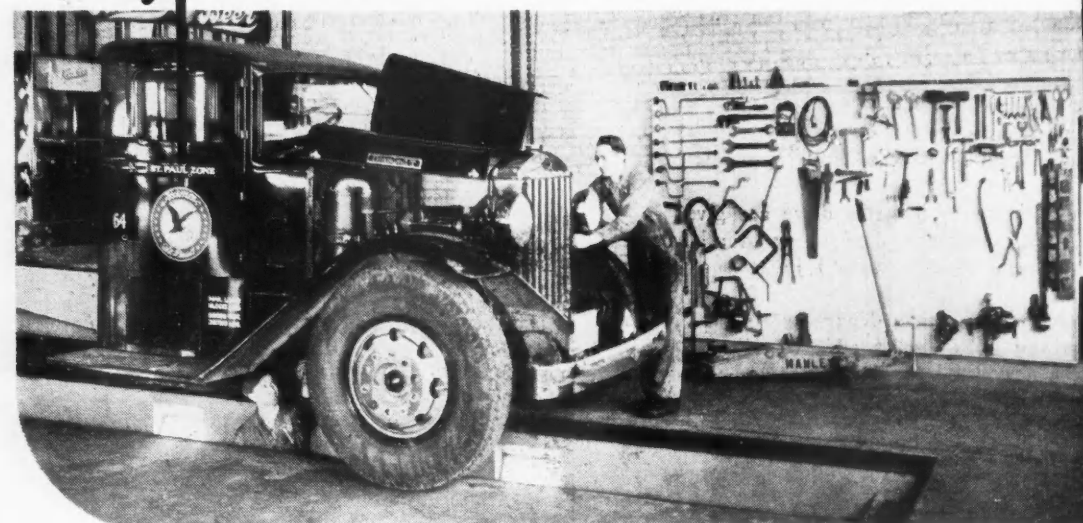
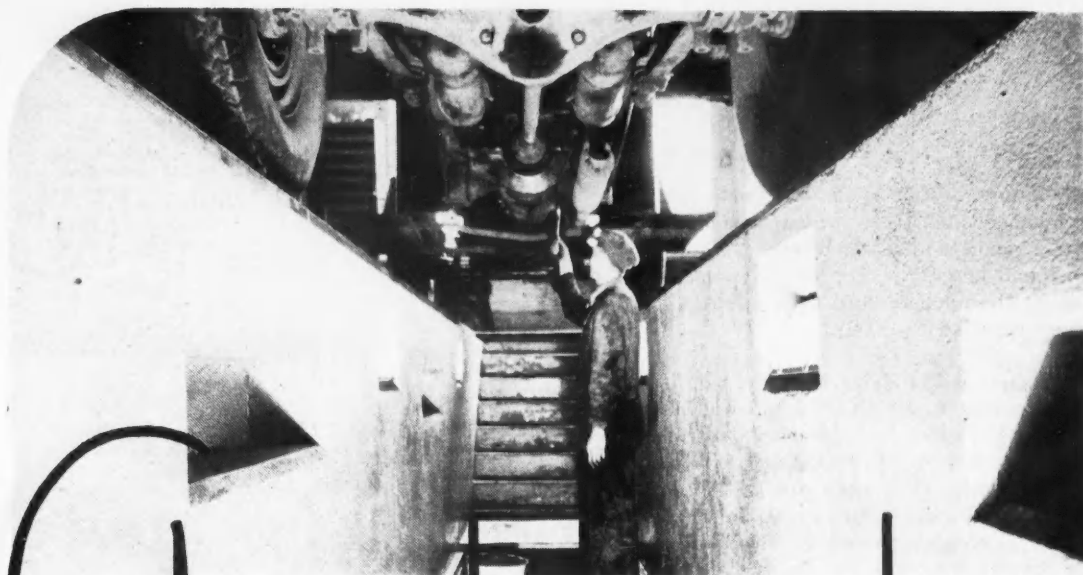
(TURN TO PAGE 61, PLEASE)

Below is shown the garage and workshop of the High Rolls CCC camp in New Mexico, typical of camp shops where truck equipment is serviced and minor repairs done. The next four photos below illustrate some of the purposes for which truck equipment is used. These include trucking mules to fire camps, moving and replanting trees, trucking men to and from camp and construction projects, and loading sand and gravel for road construction. Opposite page shows a view of the Kentucky state CCC camp in Cumberland Falls State Park. Practically all CCC camps are similarly designed and constructed. Photos are by U. S. Forest Service.



Driver Training School

24,000 Trucks Are Proving-Ground for Men Ambitious to Become Drivers



PAUL SCHULER takes a leaf from his wife's book, and follows the rules of "good housekeeping."

In case you are trying to get the connection between fleet operation and housekeeping, before we go any further we'll tell you that Paul Schuler is Director of Transportation and Safety for the Hamm Brewing Co. of St. Paul, Minn., and as holder of that all-important position, he has, and is continuing, to follow the principles which every husband hopes his wife follows. As nursemaid to one of the largest, most efficient, and most economically operated truck fleets in the country, Mr. Schuler knows from

experience that "good housekeeping" pays heavy dividends.

Let Mr. Schuler explain his version of good housekeeping, and its application to the truck business.

WHEN we designate a woman a good housekeeper, we know that she is capable of running her household well.

"1. She is economical. She exercises care in buying food and household necessities. Although she is careful of what she buys, she does not hesitate to spend a few cents more for an article, when she knows that the quality is higher than that of cheaper brands.

"2. She is scrupulously neat and clean. You'll find no dust in the book-cases, or cigar ashes in the corners, in the home of a good housekeeper.

"3. She knows how to handle her family, her husband and children, so that they will give their cooperation, and be proud of her and their home. She will not nag them. She will teach them the virtues of cleanliness, consideration for others and self-respect. She will teach them that they all have an equal stake in the home, and that they will get out of it just what they put in."

Now that we have Mr. Schuler's idea of what a good housekeeper is, we'll tell you what we saw and heard

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Opposite page—Top photo shows one of the well-lighted pits in the Hamm garage. Note the recessed shelves for tools. A platform enables the mechanic to vary his working level. Below it a truck is being inspected from above and below one of the illuminated pits. Note the complete tool rack against the wall.

Above is a line-up of part of the Hamm fleet

If fleet men hitched their stars to an apron-string and ran their shops the way good wives run their households, what would be the effect? A St. Paul fleet says: "A maximum of efficiency and a minimum of expense."

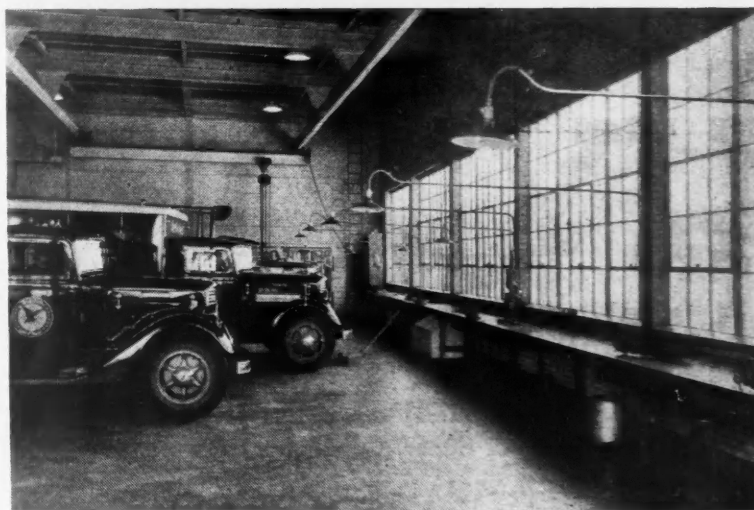
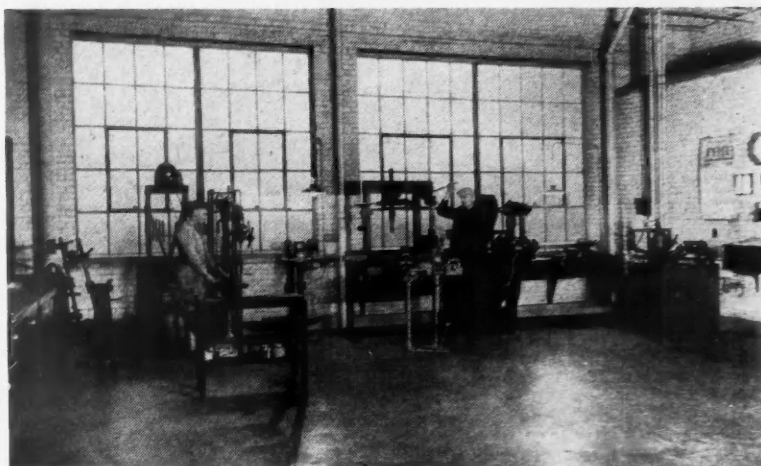
is Good to the Last Shop

By MILLS HOPKINS

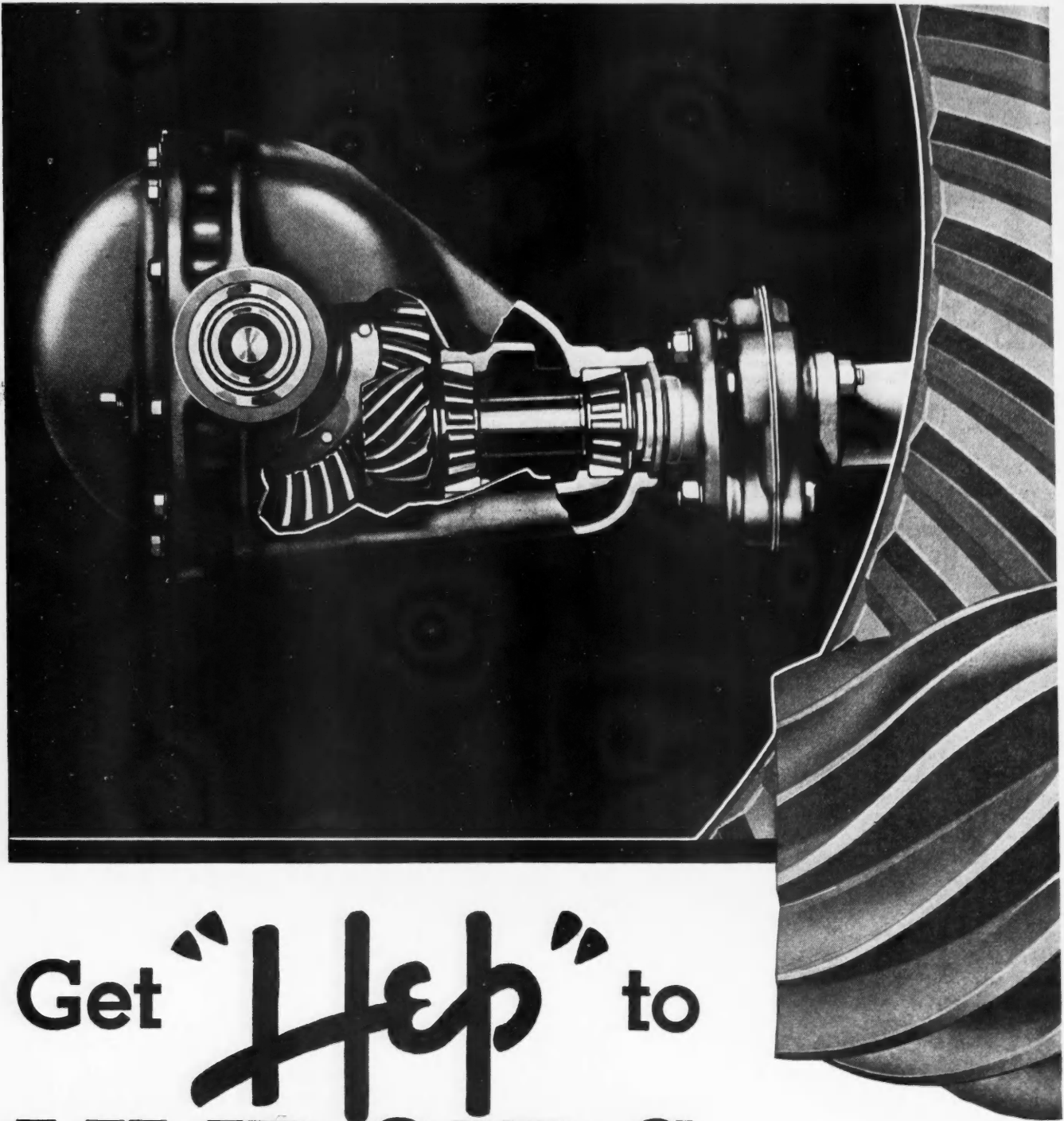
on a visit to his "house," the huge, magnificently-equipped garage of the Hamm Brewing Co. And we'll bet you a carburetor against a crankshaft that you'll see the importance of good housekeeping in running a fleet of trucks with a minimum of expense and a maximum of efficiency.

SITTING in a cradle in the corner of the Hamm shop is a truck engine. Underneath it is a pail. Ever so often a drop of water leaks out of the engine into the pail. This engine is an enigma to Mr. Schuler and his force. Why? It is the only engine ever removed from a Hamm truck and replaced with another. Yes, ever since Hamm has been running trucks, only ONE complete engine replacement has been made. And Mr. Schuler and his mechanics, baffled by the engine for several months, can't find that little leak. Some day they will, though, and the engine will be used again. That engine should be placed in a glass case as a monument to garage efficiency. It is unique, and without parallel in the Hamm truck history!

(TURN TO PAGE 36, PLEASE)



Top—View of part of the Hamm garage showing some of the modern mechanical devices available for servicing trucks. Note the cleanliness of the floor. This photo is not retouched. The shop is always as orderly and clean as shown here. Above—A portion of the long work bench which is made from the bed of an old bowling alley. Each mechanic has his vise and three separate drawers. The windows provide excellent light in the daytime. Note the overhead traveling crane



Get "Hep" to HYPOIDS

By HENRY JENNINGS
Technical Editor, Commercial Car Journal

**With Passenger Cars Going Hypoid, Fleetmen Will
Want to Know the Mechanical Principles Involved
and the Lubricating Problems That Are Presented**

HYPOID axles have been sneaking up on the passenger car business for some time via the Packard and Chrysler route and in 1937 they are going to be found in some 70 per cent of the passenger cars. In view of this situation the fleet operator had better become acquainted with these axles, their care and feeding because it is impossible to believe that some of them will not find their way into at least the lighter trucks. The menu for axles of this design is extreme pressure lubricants only. In addition to the hypoids extreme pressure lubricants have been recommended for quite a number of

COMMERCIAL CAR JOURNAL
OCTOBER, 1936

transmissions already in use and Ford has been recommending extreme pressure lubricant in the spiral bevel axle in Ford vehicles.

The hypoid axle is a cross between the ordinary spiral bevel drive and the worm drive. It has some of the characteristics of each. The purpose of incorporating an axle of this design into the new cars is to make possible lower overall height without using a propeller shaft tunnel. With hypoid gears the pinion engages the ring gear near the bottom instead of at a point midway between the top and bottom, thus making a lower drive shaft possible.

The spiral bevel drive has the pinion so placed in relation to the ring gear that the center line or axis of the pinion gear intersects the

below the center line to make a decided difference in propeller shaft height.

THE teeth of the spiral pinion and the ring gear engage without sliding against one another. At least the amount of sliding is negligible. They engage as a series of levers the teeth of the pinion, simply forcing the teeth of the ring gear around with a push supplied by the power transmitted to the pinion by the engine. The teeth of the hypoid pinion partly slide into engagement in a manner similar to that with which the worm transmits power to the worm wheel. This sliding creates considerable local heat and in addition the teeth operate under greater tooth pressure.

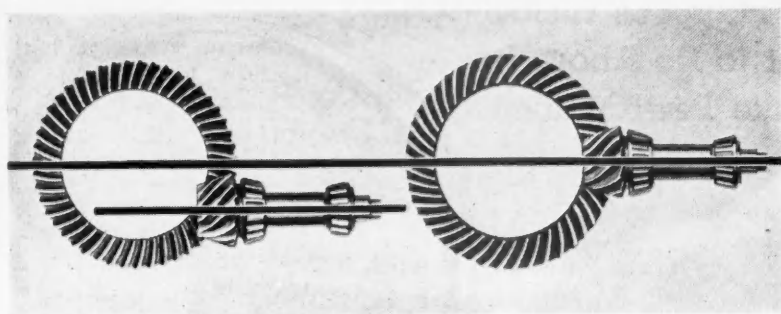
The sliding and the consequent heat generation reduce the viscosity of the oil on the surface of the teeth in contact and make it less able to maintain a film between these surfaces under high pressure. The high pressure and heat cause the teeth to have a tendency to

in relation to the ring gear determines the amount of ability that the lubricant must have to be lubricated under the severe conditions of heat and pressure. The slightly offset gears, generally speaking, require only a mild extreme pressure lubricant while the pinion located nearer the work position will require a powerful extreme pressure lubricant because the tooth pressures are greater and the further the pinion is located from center the more sliding will take place and the more the lubricant will thin out.

Usually mineral oil is combined with some other substance to make an extreme pressure lubricant although castor oil has been used in experiments with good results. Sulfur and chlorine compounds are the agents usually added to the oil to get the desired results. When these are added to a mineral oil they change the characteristic of the oil sufficiently to make it an extreme pressure lubricant. In the development of extreme pressure lubricants there has been a serious problem of obtaining a lubricant that is non-corrosive and still satisfactory in other respects. Some of the early extreme pressure lubricants were satisfactory so far as the gears were concerned, but they attacked the anti-friction bearings, causing early failure.

It is claimed in at least some well informed quarters that in order to understand hypoid gear lubrication it is necessary to forget completely your ideas of engine lubrication. There is no lubricant which has enough film strength to maintain an oil film over the teeth under the pressures encountered with the hypoid drive. The film which protects the teeth and carries away the heat is created by a chemical reaction of the agents added to the mineral oil upon the steel of the gears.

Aside from the lubrication the hypoid drive should bring very few new problems to the fleet operator. There will be no radical new adjustments nor any new maintenance procedure, with one exception. Because of the different chemicals used in extreme pressure lubricants it will be impossible in most cases to combine two brands of extreme pressure lubricants in the same transmission or rear axle without causing a chemical action which will lead to early gear failure. This means that unless the mechanic definitely knows what type of lubricant is in a gear box and is able to replenish with more of the same type it will be necessary to drain and flush out and then refill instead of replenishing.



Above—Illustrating the difference between the spiral bevel gear on the right and the hypoid gear on the left. Opposite page—Cutaway of a differential driven by hypoid gears

center line or axis of the ring gear. In the hypoid drive the pinion gear is offset in relation to the ring gear so that the center-line of the pinion gear is somewhere between the center line of the ring gear and the bottom line of the ring gear. It is, of course, possible to offset the pinion gear upward of the center-line of the ring gear, but this would have the effect of making the propeller shaft higher and would be a decided disadvantage. The worm drive operates with the pinion or worm gear completely above or below ring gear or worm wheel as it is called. While it is impossible in the hypoid drive to place the pinion directly below the ring gear it can be dropped sufficiently

weld one to another. The function of an extreme lubricant is to prevent this welding, a function which ordinary lubricant fails to perform. The surface indications by which this welding may be detected are scoring of the gear teeth and pitting. To add to the complications of acquainting the operators with a new design axle the process of delivering more torque through a smaller set of gears continues, a condition that can cause the necessity for extreme pressure lubricants even in a spiral bevel axle, as it is for instance, in the case of Ford. Failure of gear teeth by breakage has nothing to do with lubrication.

The amount that a pinion is offset

The Private Life of a Brake Drum

The Inside Story of What Happens Inside the Brake Drum and What to Do About It in Order to Get Good Brake Performance

SCANDALOUS things go on inside of a brake drum in a mechanical way and most of our instruction tabloids have missed them. Brake drums have no windows or fire escapes and for that reason it has been difficult to get illustrations inside the brake shoe boudoir, so most reformers have had to be satisfied with telling you what should go on. Here is an account—with illustrations—of what actually goes on while the mechanic scratches his head and wonders what to do after he has done all that the doctor has ordered and the brakes still refuse to be respectable.

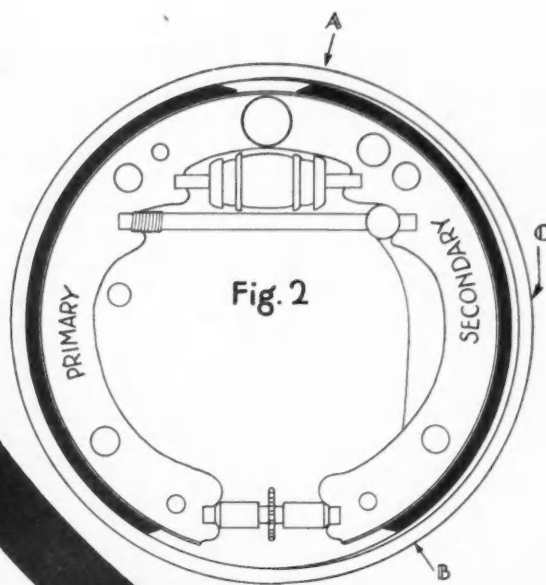
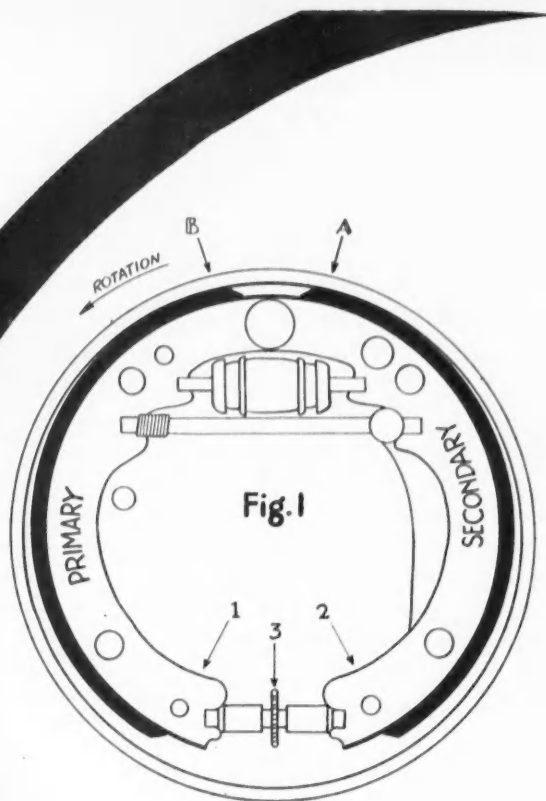
Most of the troubles are the result of faulty brake shoe adjustment. Improper adjustment causes brake shoes to bend and brake drums to wear prematurely and become eccentric. Figure 1 is an illustration of a two-shoe hydraulic energizing brake with a single anchor. The anchor end of the adjustment is too high, causing excessive heel pressure on the secondary shoe. When the brakes are applied this has a

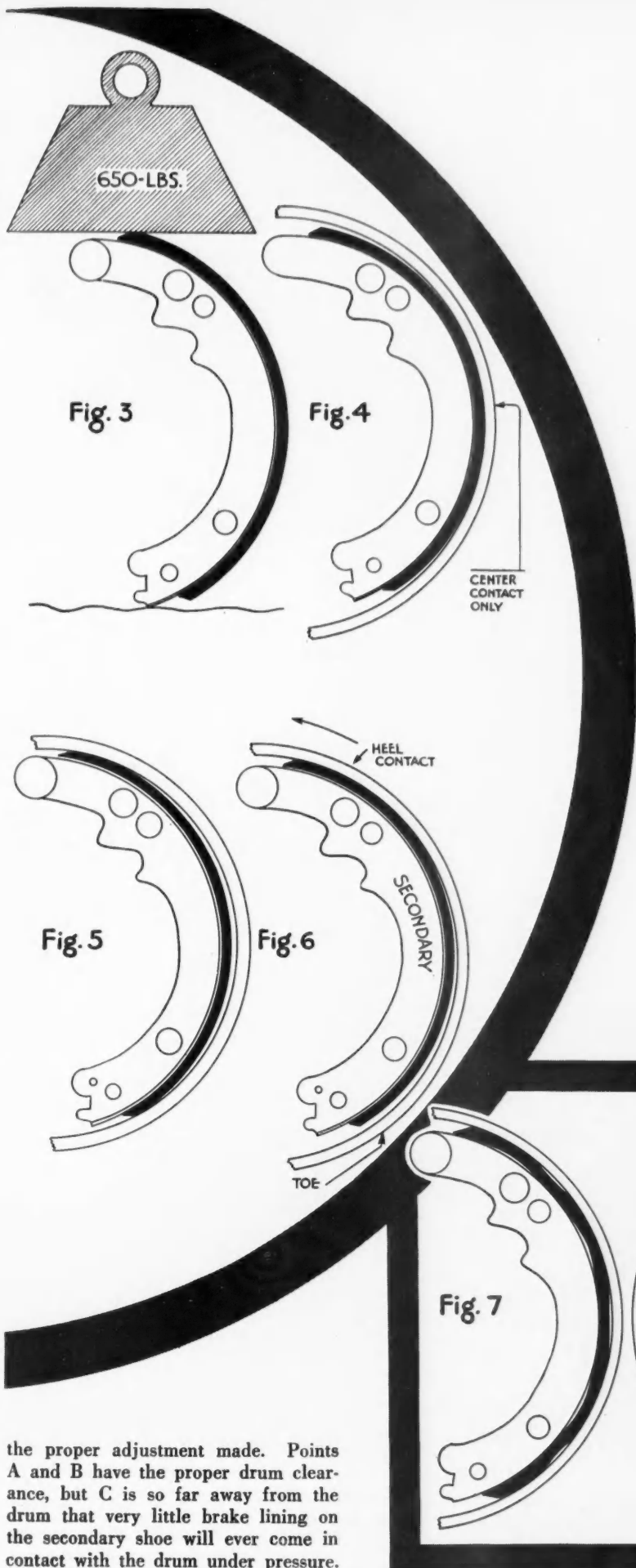
Complete details of the illustrations on this page are given in the article.

tendency to bind the end of the shoe at "A" against the drum. Since the drum is rotating, it cannot very easily expand, therefore the pressure is thrown on the primary shoe at "B" under brake application. The rotating drum carries the pressure along through the primary shoe to "1" from where it is all transmitted to "2" on the secondary shoe through link "3." Lack of shoe centralization makes it impossible for the secondary shoe to follow the drum contour and has created an enormous

pressure at "2." So what happens? The secondary shoe under pressure at one end with no backing from the drum tends to straighten out.

Figure No. 2 shows what the shoe looks like when it has been relined and





Naturally shoes in this condition cannot give satisfactory service and the most insidious part of the trouble is that upon inspection the shoes appear to be okay unless they are checked with a dummy brake drum or some shoe equipment designed for that purpose. The remedy is to either discard the shoes or rebend them to the correct contour.

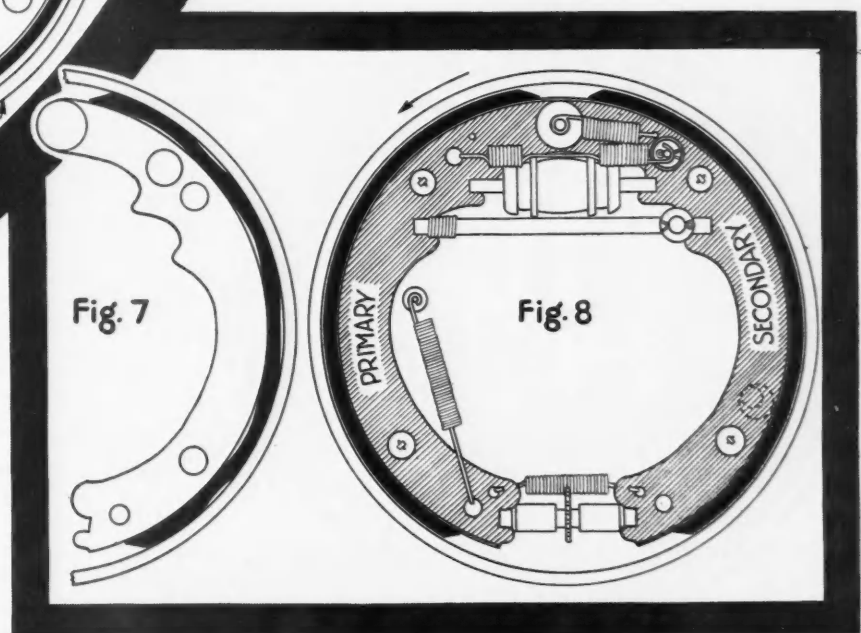
Figure 3 graphically illustrates what happens to a brake shoe when the shoes are not centered top to bottom. It is possible for the pressure on the secondary shoe to reach 650 lb.

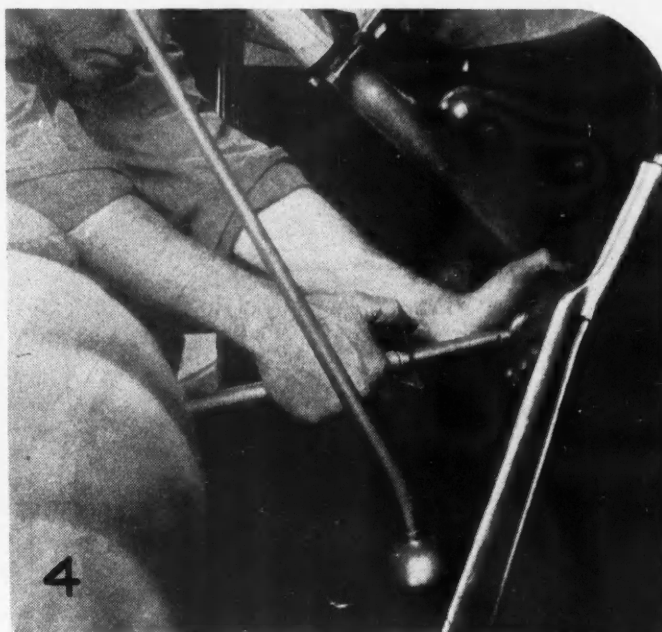
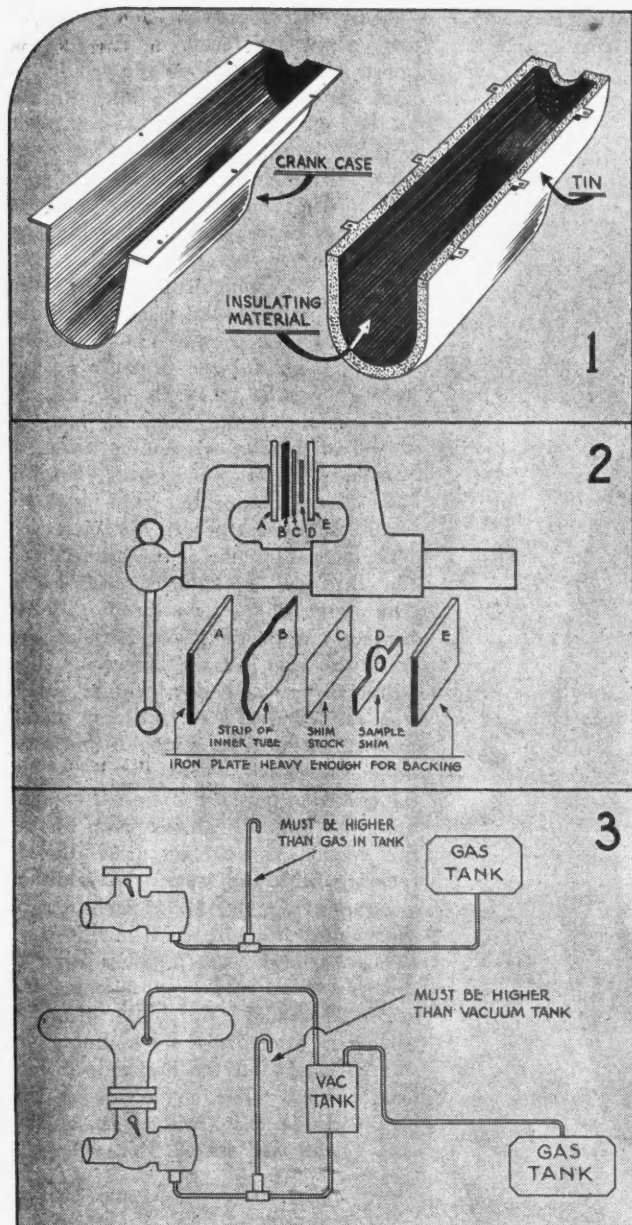
When the brake drum is reconditioned by turning or grinding a smooth concentric surface is assured, but unless some provision has been made to fit the lining surface to the increased inner circumference of the brake drum the effect will be as illustrated in Fig. 4. The brake shoes have been made to contact a drum of a specified size and when this size is made larger the shoe will give only a center contact unless it is relined with oversize lining of the correct thickness or shims are installed under the lining. Only the lining on the center part of the shoe will contact until the lining is almost worn out at this section, the contact gradually increasing with the wear. In addition to an unsatisfactory brake performance short lining life will result in this case.

Fig. 5 shows what happens when a shoe is relined with oversize lining for use in a standard size brake drum or when an excessively thick lining or shim is used after the brake drum has been turned. The contact is at the heel and toe only, with most of the

(TURN TO PAGE 67, PLEASE)

the proper adjustment made. Points A and B have the proper drum clearance, but C is so far away from the drum that very little brake lining on the secondary shoe will ever come in contact with the drum under pressure.





Illustrations of shop hints on this page are of (1) Insulated Oil Pan; (2) Bearing Shim; (3) Air Lock Stand Pipe; (4) Brake Jack

By **PAUL SCHULER**

Hamm Brewing Co., St. Paul, Minn.

Insulated Oil Pan

WE have found a way of preventing sudden and violent changes in the crankcase temperatures on some of our new engines with the thin pressed steel oil pans. Consequently we have been able to reduce emulsification and keep the lubricating oil in better condition.

It is possible to take any workable sheet metal and shape it to make a complete housing for the oil pan leaving just enough room between the oil pan and the housing for insulation. One of the various types of house insulation will work very well between the two metal surfaces and the housing can be held in place by drilled flanges which fit the flanges on the crank case. The bolts that hold the oil pan in place can also hold the housing in position.

By **FRANK P. COULOMB**

Emsco Concrete Cutting Corp., Los Angeles

Bearing Shim

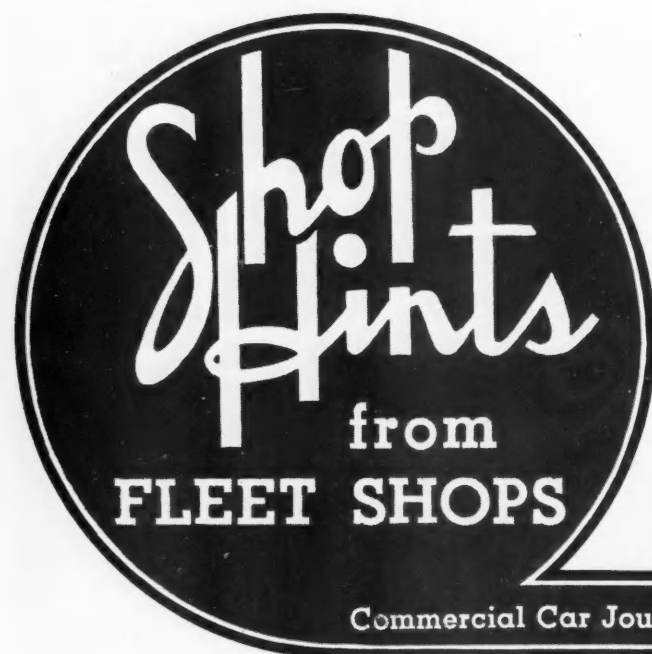
A PERFECT bearing shim can be made in a very few minutes without requiring any particular skill from the mechanic.

Insert a heavy sample shim, a piece of shim stock of the desired thickness and a piece of old inner tube between two pieces of old iron or steel. The iron or steel plates are simply used for backing and as long as the inserts are arranged with the shim stock next to the sample shim the assembly will be correct. The sample shim must be heavy to get good results.

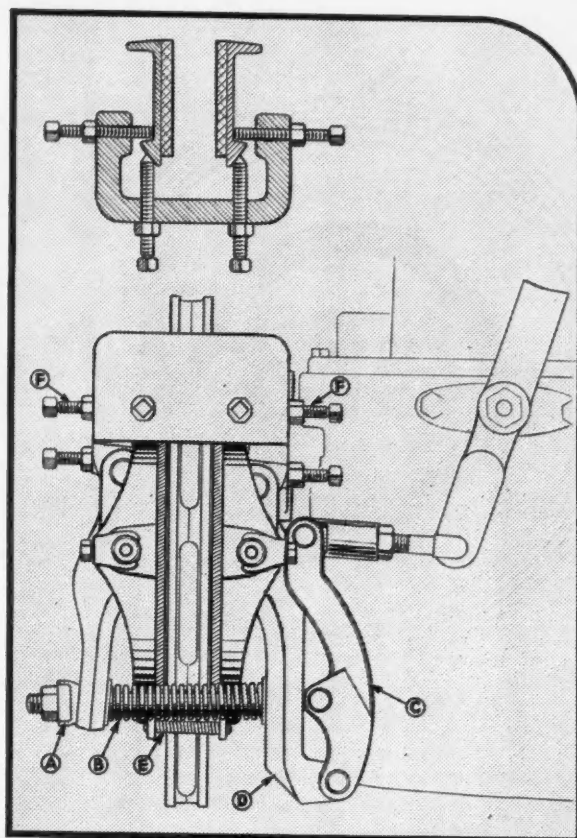
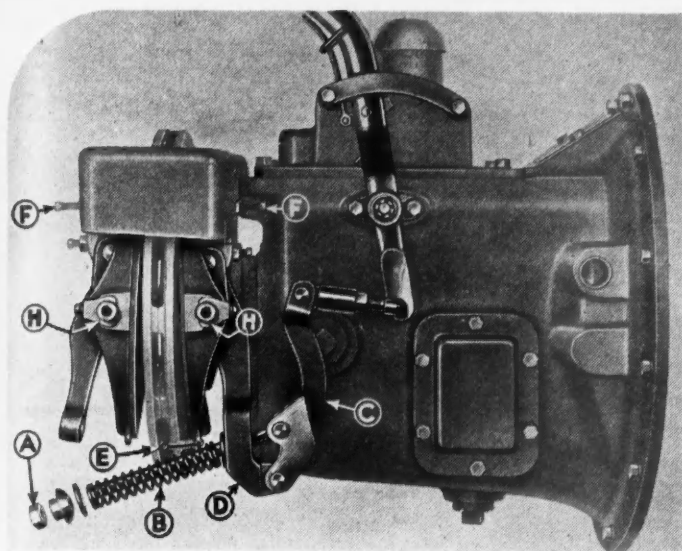
Place the inserts and plates between the jaws of a large vise or in a press and apply some pressure. The shim forces the shim stock against the rubber can the cushion effect on one side and the pattern on the other results in a perfectly cut duplicate shim—bolt hole and all.

Air Lock Stand Pipe

Air lock in a gas line can be prevented by installing a standpipe in the line between the carburetor and the regular (TURN TO PAGE 71, PLEASE)



Commercial Car Journal Will Pay \$5 for Each Shop Hint Accepted



Above is illustration (1) and to the left of it is illustration (2), both of which show the parts referred to in the article on the Tru-Stop brake

ONE of the easiest jobs that falls to the fleet mechanics' lot is the adjustment and relining of the Tru-Stop emergency brake. This brake is a disk type air-cooled brake mounted just behind the transmission. It can be fitted to almost any truck and it appears as standard equipment on many makes of trucks.

The first step in getting satisfactory performance from the Tru-Stop brake is to check the brake size against the gross weight of the truck. Listed below are the various sizes of brake and the capacities for which the manufacturer recommends them.

Disk Diameter	No. of Shoes	Gross Weight
11 in.	2	13,000
12 in.	2	16,000
14 in.	2	19,000
14 in.	4	25,000
16 in.	2	24,000
16 in.	4	25,000 and up

The adjustment of this brake is extremely simple and should take only about 15 minutes. All sizes of present type brake adjust alike. Referring to Fig. 1 the steps are:

Showing How Easily Tru-Stop Emergency Brakes Can be Ad- justed and Relined

1. Make sure that lever is in full release position.
2. Tighten nut A so that spring B exerts enough pressure to bring lever C solidly against lever arm D.
3. Insert 1/32 in. shim between front shoe lining and disk and adjust pull-rod to maintain this clearance.

4. Tighten nut A so that there is 1/32 in. clearance between rear lining and disk.

5. See that tension spring E is in place and then adjust screws F so that linings are parallel with the disk.

6. Remove shims.

Relining the Tru-Stop brake is not a complicated job. Referring to Fig. 2 the steps for relining are:

1. Remove nut A.
2. Remove spring E.
3. Apply hand lever so that rear arm can be swung back clear of tie rod and spring.
4. Remove shoe pin locks H and drop shoe.
5. Reline brake shoes.
6. Replace shoes and adjust according to instructions previously given.

There is an older style of Tru-Stop brake for which the procedure is somewhat different but the job is just as simple as it is on the newer brake. Using Fig. 3 as a reference the steps
(TURN TO PAGE 72, PLEASE)

Centralizing the

SEVERAL months ago the Tri-State Motor Transport, Inc., had its home terminal in downtown Joplin, Mo., with little repair shop room, every terminal function being jumbled together in too-small space. Then it bought an old street car barn, which was converted into a modern truck terminal with dockage, storage room, offices and ample space for truck servicing, including a parking lot big enough for the entire fleet, a shop proper, wash rack, painting room and inside storage for a number of trucks.

For some time now the company has maintained a favorable operating cost by keeping relentlessly at the work of having trucks in shape and avoiding accidents. Growth of business had made the original terminal so inadequate that handling its tonnage was hindered and operation of the maintenance department hampered to the extent that an increase in cost was threatened; the move was one of necessity as well as convenience.

THE company operates 200,000 miles monthly; each unit makes 100,000 miles yearly. This, growing from a start with one run, Kansas City-Joplin. Another run, Tulsa-Joplin, was soon started and the firm was incorporated. It was then that the operators saw the advantages of centralization, determined to make Joplin the center of a radiating coverage. A territory centered at the end of a day's run on



Top—A line-up of equipment operated by Tri-State. Center—High-speed portable greasing equipment in use on a truck making its daily stop at the central shop. Above—This high-speed washer is also used with a chemical to remove paint for a refinishing job. Photos on opposite page show a truck body being prepared for a painting job and below it a driver is shown handing a truck report to the shop foreman

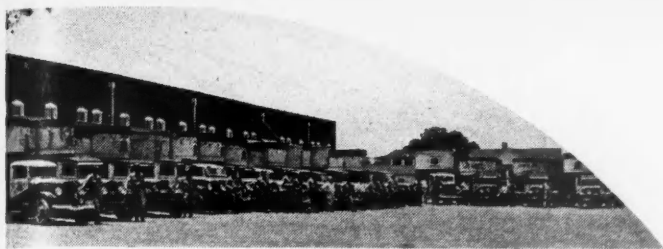
any route made for quick and cheap service to the equipment used.

This plan has been carried forward with the acquirement of St. Louis and Oklahoma City runs, and side trips have been established till nine scheduled routes are worked. On all runs,

each truck and tractor passes through Joplin once daily and is serviced.

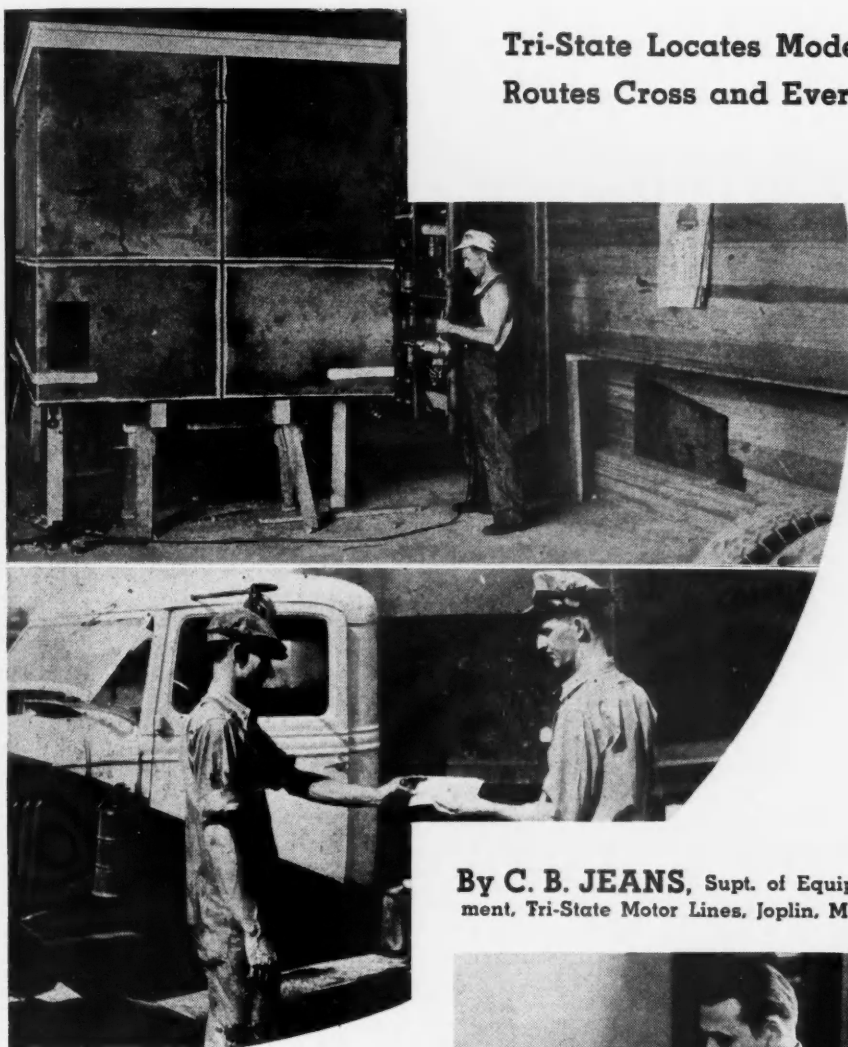
The fleet is made up of 23 2- and 3½-ton tractors—semi-trailers and 12 pickup and delivery trucks. To service these once a day, a new repair shop was planned for the new terminal.

COMMERCIAL CAR JOURNAL
OCTOBER, 1936

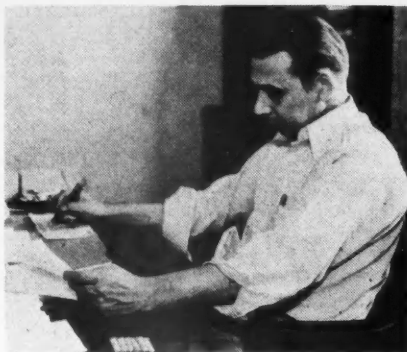


Shop Makes Service \$ense

Tri-State Locates Modern Shop at Spot Where Truck Routes Cross and Every Truck is Checked Every Day



By C. B. JEANS, Supt. of Equipment, Tri-State Motor Lines, Joplin, Mo.



Experience had shown two main things wrong in the old shop: lack of space and slow equipment. The new shop was planned with plenty of space and equipment up to the standards of 1936 to take advantage of the improvements in service equipment in recent years.

THE old quarters had become so cramped that one important service factor had nearly been forced aside,

the painting of equipment. The Tri-State company believes that the painting of equipment is a very essential

feature of a modern transport service, that well-painted trucks on the road are advertisements with a value which cannot be assessed in dollars and cents but which is far more than the cost of the paint and painting. Repainting of all equipment once yearly is the scheduled plan.

Only lacquer finishes are used in the shop, with spray gun application. The new shop equipment is so efficient that a truck has been cleaned of old paint and repainted in one day, by using paint-removing compound in the new high-speed washer.

In fact, service is in two divisions, repair and appearance, with tire care getting enough attention almost to constitute a special division which has brought the average tire mileage up from 40,000 to 60,000 miles in the last two years.

The new shop is intended to handle this service work better and cheaper, or at least to enable the two mechanics and one body and paint man who have been handling it with their helpers to keep on handling it—anything up to a complete body and cab rebuilding job, except generator and starter work which is under contract. Also the plan was to speed up servicing because no truck can earn its keep standing in the repair shop—and equipment was added to do that.

CONSTANT-POTENTIAL battery charging replaced the bulb type. A new washing machine using a cleaning compound was purchased. An axle straightener was added to complete the wheel alignment equipment. Hand and bench tools, chain falls and big jacks are plentiful.

(TURN TO PAGE 44, PLEASE)

The Album

Of Modern Truck Transportation Equipment



1 THE TRAILER Company of America offers this eye-ful operated by Blanchard of Rochester. The furniture body has curb doors and winch type tailgate. Capacity is 1600 cu. ft. Body is mounted on a Trailmobile drop frame model TD-62 semi. Tractor is a WARD LA FRANCE, 102-in. wheelbase powered by a CUMMINS diesel.

2 A complete awning shop was built into this 7-ft. body by the NATIONAL BODY CO., Detroit, mounted on a 1/2-ton GMC Model T-14 for West Side Tent of Detroit. Side panels have locking compartments for tools, fittings, etc.

3 DODGE offers food for thought in this truck while Garman of Springfield, O., trucks food for the table. The open body is protected by drop curtains at the sides.

4 GRAMM built this tractor and semi-trailer operated by Stelzer of Lima, O. The furniture van of 100-cu. ft. capacity is finished in light green with black lettering. Side door fits flush and has a flush lock.

5 HIGHWAY trailer and DIAMOND T tractor team-up for Underfanger. The model 705 body is mounted on a 127-series drop frame semi-trailer and has full length rear doors, and door on curb side. Capacity is 1400 cu. ft.

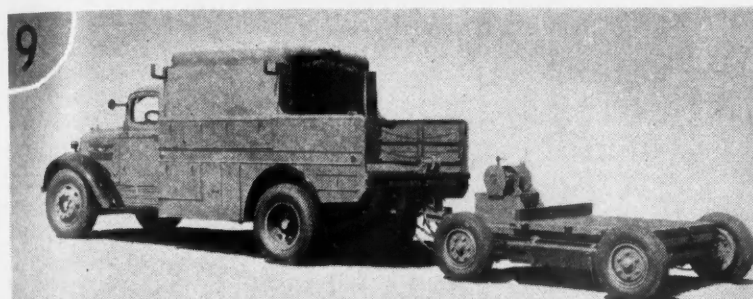
6 THIS WALKER electric short-haul, multi-stop delivery unit is operated by Macy of New York City. Windshields open out for platform loading. Side doors slide.

7 LUCE MFG. CO. offers this interesting Mastercraft built bakery body constructed of special aluminum with a burl finish. Interior is lined with plywood and finished in non-tainting varnish. Shelving is of odorless white wood. Rear doors have ventilators at the top. Doors jack-knife deeply in rubber to insure against dust. Chassis is a Ford V8.

8 FRUEHAUF designed and built, style and distinction have been attained by the use of fenders on the rear wheels of the Ford

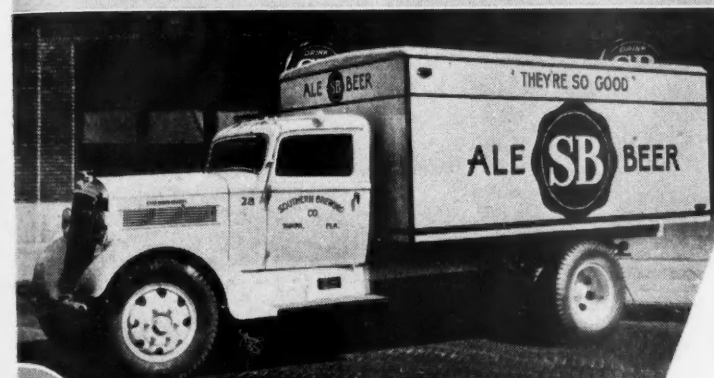


tractor and "pants" on the trailer wheels. This drop-frame trailer totes 1250 gal. in the HEIL tank for Canfield.



WHITE lines up for underground line construction work with model 704 on which is mounted a BAKER-RAULING all-steel body. This unit carries tools and supplies and a power winch. Tools are stowed in the skirt compartments. The 15,000 lb. capacity trailer built by TRUCK ENGINEERING CORP., is used for hauling lead cable.

KNOCK-KNOCK! Who's there? Foam! 10
Foam who? Foam morn till night. This smart REO totes a load of beer on its back and likes it. It is a 2 to 3-ton unit of which Southern Brewing of Tampa, Fla., is proud.

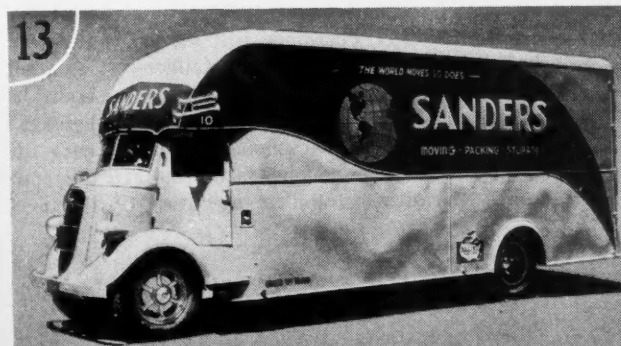


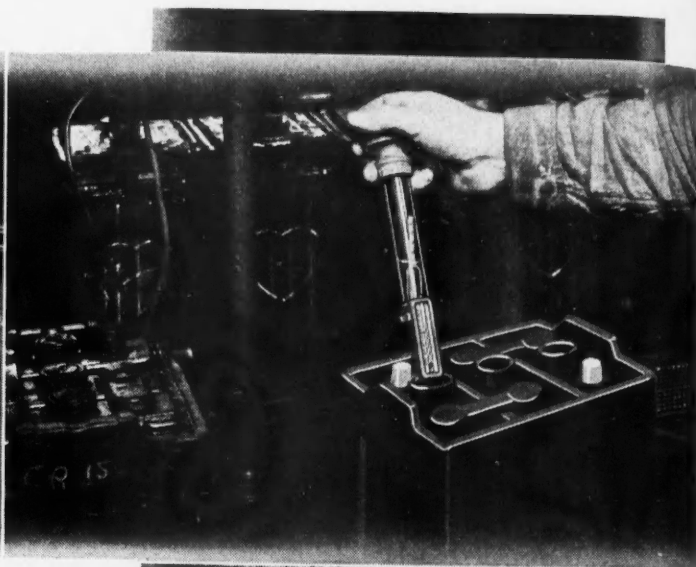
YORK-HOOVER BODY CORP., York, Pa., designed this convenient milk delivery body for the Crowley Milk Co., Binghamton, N. Y. A feature is the accessibility of the front-end for retail delivery. This was made possible by streaming the side windshield posts into the cowl of the chassis thus eliminating the usual side projections. A sliding door which actually slides in an arc completes the streamlined design when doors are closed. The driver's seat swivels to provide minimum effort in reaching the wide well-step and it also facilitates reaching the load through the left door. Interior of the body is metal lined and insulated. Chassis is an IHC.



THIS load of oranges is a strenuous haul for any truck but not enough to stump a Model 15 FEDERAL. Illustrated is a 1½ to 2-ton job with 156-in. wheelbase ready to haul a load of 120 cases of oranges from the grove. Not only this one but eight brother Federals are operated in the grove by the International Fruit Corp., Lucerne Park, Fla. Of particular interest is the flat type of body which is in general use by citrus growers throughout the orange blossom state.

A STUDEBAKER cab-forward chassis goes a 'courtin' with this handsome huge furniture van on its back. The van has a loading capacity of 1200 cu. ft., inside with an over-all length of 26 ft. 3 in. With the use of the tailgate, it can easily accommodate 1400 cu. ft. Width of the van is 95 in. and height is 10 ft. 10 in. The body weighs 3500 lb. Total weight of the unit is 8600 lb. The van is finished in a two-tone green and the wheels, bumpers and top are aluminum. The unit has de luxe equipment throughout. Sanders should have no trouble keeping himself in the world's eye as long as smart looking trucks such as this job are operated on the highways.





What are the Weakest Links in the

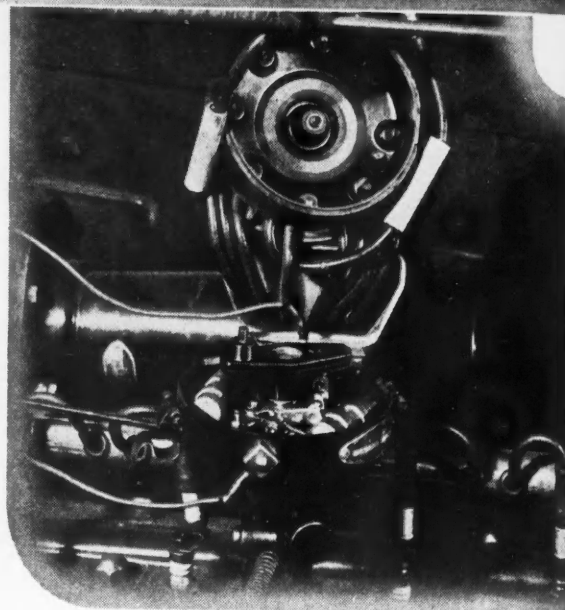
IGNITION SYSTEM?

Condensers, Breaker Points, Coils and Distributors Are Among the Nominees Picked by a Vote Cast by 66 Operators

(Reported by Commercial Car Journal's Readers' Service Bureau, Edward H. Miller, Manager)

MOST fleet operators will agree that ignition leads the road failure parade and this marshal position makes the selection and care of the various parts that go to make up an ignition system prime headache material. In quizzing 66 fleet operators

COMMERCIAL CAR JOURNAL found that in addition to aspirin 24 fleet operators are using test equipment that belongs to them in the regular maintenance of their trucks. In some cases the equipment is not built up into a test bench but 24 operators are using

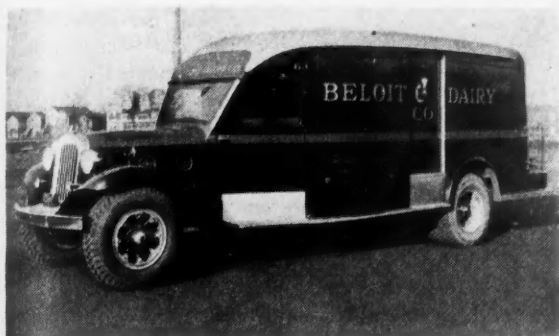


good equipment in their own shops. Eleven operators do not have sufficient equipment to properly test ignition units and for that reason they send their trucks out periodically to a shop that is equipped for the work. Twenty-seven operators are still working by-guess-and-by-gosh and probably paying handsomely for the privilege, and the answers from four fleets were not entirely clear.

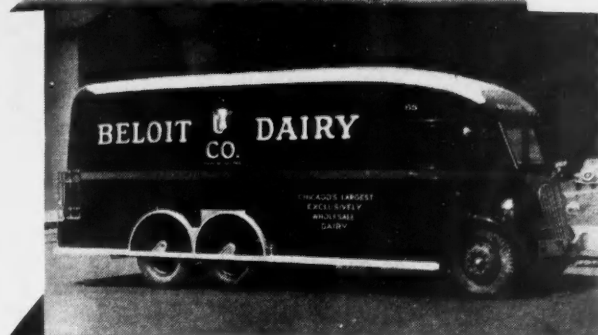
What with using some pretty accurate test equipment and calling upon maintenance experience these fleet operators have some pretty emphatic ideas about which part of the ignition system is the weakest link. These opinions are not unanimous but in some cases they coincide in sufficient numbers to give designers some ideas—if they are receptive to ideas from practical men. Condensers have the

(TURN TO PAGE 96, PLEASE)

COMMERCIAL CAR JOURNAL
OCTOBER, 1936



1 9 3 4



1 9 3 5

Photos show transition in Beloit's truck Design for three years, 1934-1936

ONE morning not long ago the driver of one of the large new Beloit Dairy Co. trucks — attractively painted and streamlined and especially designed for the wholesale delivery of milk in the Chicago metropolitan area noticed a passenger car following. This continued for some time. Then the automobile cut in ahead, and the driver was fearing some kind of "stick up".

"I'm the Health Commissioner of Evanston, Ill.," the man explained. "I was attracted by your milk truck and I would like to see the inside of it."

The driver took pride in showing the Evanston official such sanitary features as aluminum lining, separate compartments, close-fitting doors. But the official was also interested in general in the big new ten-ton truck. He climbed up into the roomy front cab and settled himself in the comfortable driver's seat, perched high over the nose of the engine overlooking traffic.

"The best arrangements, in every way, that I've ever seen," said the official as he manipulated the controls and even tooted the horn.

The enthusiasm of the official must have been passed along, for soon the leading newspaper of Evanston gave the Beloit Dairy Co. truck a complimentary write-up, commenting on its attractiveness, listing its sanitary fea-

tures, and comparing its general appearance to one of the most famous of the new all-metal, stream-lined trans-continental trains.

THIS Evanston incident is mentioned because it is typical of the public attention that the new Beloit Dairy trucks are attracting and proves that putting individuality as well as utility into a truck body does have real advertising value.

The new Beloit Dairy trucks

seem almost in the *spectacular* class. For I well remember the first one I ever saw a few weeks ago at a busy Chicago street crossing. One glance at the front of it was enough to fix my attention. I was attracted by the large size, which, however, was harmonized by the streamlined neatness, and the contrasted colors from the aluminum front guard rail and the wide horizontal grille of polished metal. Also, there were no visible

(TURN TO PAGE 93, PLEASE)

Pasteurized PULCHRITUDE

Beloit Dairy Proves With Distinctively Styled Truck Bodies That Good Looks Help Capture Good-Will

1 9 3 6
By R. R. HOWARD

EDITORIAL COMMENTS

After Hours

BY GEORGE T. HOOK EDITOR

Combined With a Report of the ICC Hearing on Proposed Safety Regulations

THE cartoon on the opposite page may strike you as funny, but don't dismiss it with a chuckle. It is a humorous interpretation of a serious suggestion made to the Interstate Commerce Commission by organized labor at a public hearing last month on the proposed safety regulations applicable to motor carriers subject to the Federal Motor Carrier Act of 1935. Although the suggestion is preposterous it is valuable in that it forecasts the lengths to which organized labor may be expected to go to hold and increase its membership after such matters as wages and hours of labor have been equitably adjusted.

The hearing before Commissioners Eastman, Lee and Caskie lasted three days. Despite the air-conditioned surroundings tempers were near the boiling point several times. They never quite boiled over because of Chairman Eastman's genius for asserting a soothing influence when blood pressures began climbing. Direction signals caused the most heated discussions. In fact, they received so much attention that there was laughter when several witnesses declared they had no remarks to make on the subject.

THE direction signal discussions produced a mass of opinionated opposition—but not one fact that might convince the commissioners of their uselessness as a device to promote safety.

The proposed safety regulations would require at least one illuminated signalling device to indicate a right or

left turn on vehicles or combinations where the outermost edge of the vehicle, or any load thereon, extends 24 in. or more beyond the center of the steering post. They would require two illuminated signal devices, one located at the left to indicate a left turn, and one located at the right to indicate a right turn, whenever the overall width of any motor vehicle or combination is 80 in. or more.

The American Trucking Association, Inc., objected to the proposals chiefly because the vast majority of trucks in interstate commerce would be subject to the requirements and the necessary investment constituted too large a burden for the industry to bear. The A.T.A. figured the minimum installation at \$20 per truck; added another \$25 for loss of revenue while the truck was tied up for the installation; multiplied it by 150,000 trucks, and reached the staggering cost of \$6,750,000.

In an effort to evade this addition to the cost of operation, the A.T.A. asked that application of the requirement to all vehicles 80 in. or more in width be ruled out, and that the crucial distance

from the center of the steering post be increased from 24 in. to 36 in. The latter request was particularly unfortunate because cross-examination of A.T.A. witnesses revealed it as a thoroughly ridiculous request. One witness loyally insisted that within the 36-in. limit a truck driver could make his hand signal visible without crawling half way out of the cab.

SEVERAL bus operators objected to directional signals on the ground that their contribution to safe driving was questionable. R. W. Budd, president of Central Greyhound Lines, speaking for 14 affiliated Greyhound companies, said that all new buses were being equipped with the signals but that no decrease in accidents as a result had been noticed. On the Boston-New York run, where signals have been in use for some time, he said they had no results in reducing rear-end collisions. In answer to a question, Mr. Budd said the only reason why they were putting directional signals on trucks was because they felt that sooner or later they would have to put them on, and it was cheaper to make installations at the factory than in the field. His personal opinion was that they don't do any good and don't do any harm.

F. D. Spofford, assistant to the president of Blue Ridge Transportation Co., testified that his company had experience during the past year with directional signals and that no benefits had been derived. His objection to them was that they are not adequate for helping the driver determine that he has the right of way to make the desired movement. Under cross-examination he admitted that his line had not had sufficient accidents to determine whether buses without the signals had better records than buses with them.

It was in the discussion of this subject that organized labor advanced its remarkable substitute. Reading from a carefully prepared statement, Thomas P. O'Brien, general organizer of the International Brotherhood of Teamsters, Chauffeurs, Stablemen and Helpers of America (affiliated with the American Federation of Labor and boasting approximately 300,000 members), said: "Lights and signalling devices are not the answer to the problem. The answer is in placing helpers or human signal

All three members of the ICC Motor Carrier Division sat in the hearings on safety regulation. Eastman, Chairman (center); Lee (right); Caskie (left)



COMMERCIAL CAR JOURNAL
OCTOBER, 1936

Organized Labor's Solution of the Highway Safety Problem

devices on the back of the equipment if we are desirous of bringing about safety."

Mr. O'Brien was asked where the helper would sit, and answered that there was no cause for worry on that score. "He'll make his own seat."

THE proponents of directional signals were equally without indisputable facts regarding their merits. A highway patrol officer from Minnesota and a surgeon from the same state who had invented a directional signal, testified in favor of the I.C.C. proposals but their statements were opinionated and without supporting facts.

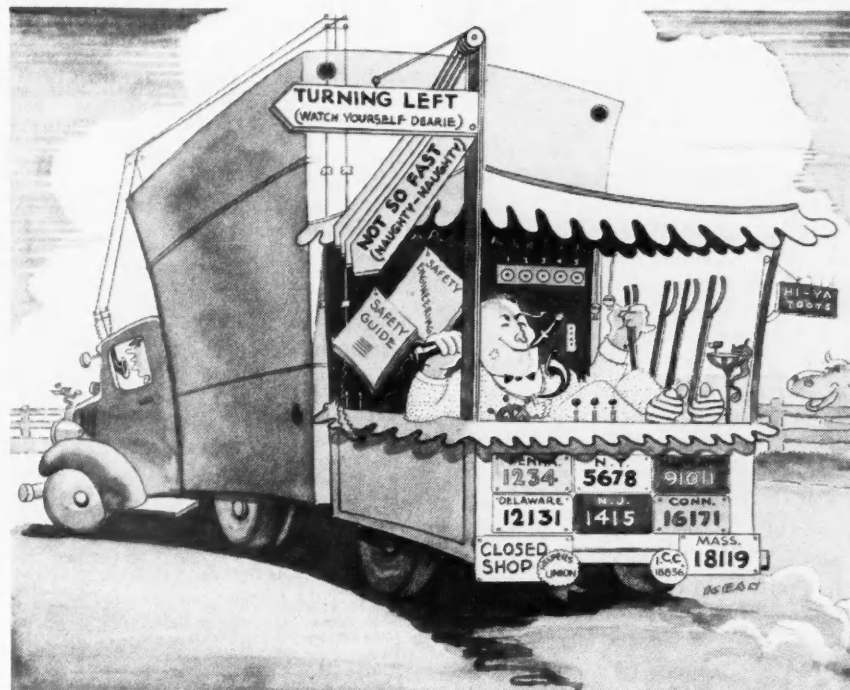
It is the writer's opinion that the evidence presented on direction signals was not very helpful to the Commission, and that on the basis of the evidence advanced the chances favor retention of the proposals as written with possible modifications to lessen the burden of immediate investment.

THE section of the safety regulations dealing with qualifications of drivers evoked the greatest amount of discussion with tempers under perfect control. This was true even in the case of organized labor's testimony—largely because everyone sensed the motives behind labor's reasoning.

The qualifications as set up in the proposed safety regulations embrace: Good physical and mental health; good eyesight, with or without glasses; adequate hearing; at least one year's experience in driving, including experience throughout the four seasons; competency to operate safely the type of vehicle or vehicles which he drives; knowledge of I.C.C. safety rules and regulations; must not be addicted to drugs; must not use or be under the influence of alcoholic liquor while on duty, nor otherwise make excessive use thereof; ability to read and speak the English language unless he was engaged in driving on the effective date of the regulations or within one year prior thereto; 21 years of age with the same "grandfather clause" as in the case of language, but in no case less than 18 years of age. Evidence supporting the qualifications would be submitted by the operator in the shape of a form containing pertinent questions. This form includes questions dealing with convictions on charges involving unsafe driving practices.

THE American Trucking Associations contented itself with requesting that the minimum age limit for drivers be 18 instead of 21.

Speaking for the Ohio Association of Commercial Haulers, Frank Kirby, secretary, disagreed with the A.T.A. and asked that the minimum driver age be



21 instead of 18. He also asked that the driver assume responsibility for the accuracy of driver application statements instead of the employer.

This latter point was somewhat down organized labor's alley. Charlton Ogburn, counsel for the Amalgamated Association of Street and Electric Railway and Motor Coach Employees of America, urged that the driver application questionnaire, assuming it is proper, should be filled out by the employee and submitted not to the employer but to the Motor Carrier Bureau of the I.C.C. He argued that there would be no objection to the employer receiving the questionnaires if they would be properly used, but because some of the questions are intimate labor has ample reason to fear a misuse, and rather than run the risk of such misuse it prefers that the applications be filed confidentially with the Motor Carrier Bureau. Back of this suggestion was the fear that "unscrupulous employers" might use some of the answers as an excuse for firing employees who are active in union circles.

HE admitted, upon questioning by Chairman Eastman, that there was no information in the questionnaire that the employer ought not to know about an employee. And he gave no satisfactory answer to the question: "What is there to prevent an employer from asking the same questions?"; nor to the succeeding query: "If the answers disqualify a man, how would you have the Motor Carrier Bureau handle the case? Would you have the Commission refuse

to issue a license so that the employer would know whether the driver is qualified or not?"

Subjected to analysis, this is probably what is back of organized labor's stand: (1) Since all drivers now employed must fill out application questionnaires, many of them may be disqualified on the grounds of poor health, bad habits, prison records or accident-proneness. Many of the disqualified may be union members, and the union cause would suffer if they were fired; (2) If a system of licensing drivers by the Interstate Commerce Commission is adopted, drivers may thumb their noses at the value of unionization when they realize that they owe their jobs solely to their own abilities and not to the union's ability to coerce employers.

THE second point was boldly emphasized by Organizer O'Brien's insistence that it is "not at all important for the I.C.C. to license employees since they carry state licenses in the states in which they operate." He said "safety can be promoted better through more stringent regulation of owners of trucks. Proper safety can be obtained by controlling the terms of the licenses to the owners and not the drivers. The owner licensing conditions should include:

"1. Control of hours of work.

"2. Rigid standards as to physical conditions of trucks and other equipment.

"3. Periodical examinations by the Commission of these standards.

(TURN TO PAGE 91, PLEASE)

1935-1936 Fleet Safety Statistics

(Compiled by The National Safety Council)

THE 1935-36 accident experience of commercial fleets covers 1179 units that operated 58,000 vehicles over 950,000,000 miles during the year. This is the largest coverage of commercial vehicle accident experience ever published by the National Safety Council. The increase coverage is due to more reports from truck and passenger car units. The rate of 2.74 for all fleets, therefore, is a more reliable measure of general experience.

Outstanding Facts

1. The 1935-36 records of 1179 fleets, operating 58,000 vehicles of all types, averaged 2.74 accidents per 100,000 miles.
2. Small fleets had the lowest accident rates, averaging 2.62.
3. Passenger car drivers had lower rates than operators of other types of vehicles by averaging 1.59.
4. Of various kinds of fleets, bus fleets engaged in inter-city transportation had the lowest rate, 0.93.
5. For the first time in five years, the average rate for all reporters increased over the previous year. The increase, however, amounts to only 1 per cent.
6. Only large fleets improved their records in comparison with 1934-1935; the reduction in rates was 1 per cent.
7. Of the various types of vehicle operators, bus drivers made the best records in comparison with the previous year with an average reduction in their rates of 8 per cent.
8. Passenger car drivers of the Fort Worth Division of the Gulf Companies continue to have the best record among commercial fleets—1,784,028 miles.

THE outstanding feature of the 1935-36 experience of all fleets is their failure to show improvement over the preceding year. While this is the first time in five years that rates have not decreased, improvement in the preceding two years has been small. The net reduction over the last three years amounts to less than 4 per cent.

Accident rates by fleet sizes were:

Size	1935-36 Accident Rate	Percentage change from 1934-35
All Fleets	2.74	+1%
Large	2.76	-1%
Middle-sized	2.67	+9%
Small	2.62	+8%

(TURN TO PAGE 107, PLEASE)

Accident Rates of Commercial Vehicles, July, 1935—June, 1936

Group	Number Fleets	Number Vehicles	Number Vehicle Miles	Number Accidents	Accidents Per 100,000 Veh. Miles
ALL FLEETS	1,179	58,296	950,599,000	25,974	2.74
PASSENGER CARS	208	14,437	232,798,000	3,699	1.59
BUS	64	3,342	184,172,000	3,917	2.13
Inter-City	39	1,875	140,053,000	1,306	.93
City Bus and Taxicab	25	1,467	44,119,000	2,611	5.82
TRUCK	907	40,517	533,629,000	18,358	3.44
Inter-City Trucking	32	1,452	28,043,000	527	2.02
Building Materials	12	190	2,274,000	48	2.11
Coal and Ice	11	207	1,761,000	40	2.27
Transfer and Storage (Local Cartage)	20	426	9,364,000	215	2.30
Fuel	16	408	4,762,000	115	2.42
Ice	10	433	4,125,000	107	2.59
Public Utility	119	11,793	115,783,000	3,231	2.79
City and Inter-City Trucking	14	500	11,421,000	328	2.87
Petroleum	129	7,911	115,146,000	3,855	3.35
City Trucking	101	3,570	49,108,000	1,700	3.46
Miscellaneous Manufacturing Plants	66	888	9,938,000	347	3.49
Meat Packing	31	980	19,524,000	686	3.51
Dairy	43	2,949	36,419,000	1,328	3.65
Bakery	54	2,490	40,436,000	1,539	3.81
Laundry	97	1,855	22,265,000	880	3.86
Beverages	30	621	6,708,000	310	4.62
Department Store Delivery	106	2,769	39,710,000	1,905	4.80
Newspaper	16	1,075	18,852,000	1,217	6.46

NOTE: Statistics in the next table apply only to the National Safety Council's 1935-1936 contest. All of the statistics are included in the table above.

Summary of 1935-36 National Safety Council Contest Accident Experience—Twelve Months

Group	Number Fleets	Number Vehicles	Number Vehicle Miles	Number Accidents	Accidents Per 100,000 Veh. Miles
ALL FLEETS	590	38,760	864,702,000	14,578	2.19
BUS	45	1,951	152,328,000	1,657	1.09
Inter-City	31	1,582	136,851,000	1,262	.92
City	14	369	15,477,000	395	1.84
PASSENGER CAR	185	14,030	223,274,000	3,553	1.59
TRUCK	360	22,779	289,100,000	9,368	3.24
Inter-City Trucking	18	1,284	26,591,000	326	1.23
Coal and Ice	15	546	4,544,000	100	2.20
Bakery	7	198	4,511,000	105	2.39
Public Utility	82	8,264	80,104,000	2,098	2.62
Miscellaneous Manufacturing Plant	12	130	1,507,000	44	2.92
Dairy	12	1,946	21,748,000	711	3.27
Newspaper	4	172	3,527,000	121	3.43
Petroleum	89	6,470	98,259,000	3,427	3.49
City Trucking	34	1,555	20,988,000	746	3.55
Beverage	18	400	3,330,000	161	4.83
Department Store	51	1,337	18,757,000	1,142	6.09
Laundry	18	497	5,233,000	387	7.40

Outstanding No-Accident Records

(Best all-time records known to National Safety Council)

Type of Fleet	Company	No-Accident Miles
Passenger Car	Gulf Companies (Ft. Worth Division), Houston, Tex.	1,784,028
Inter-City Trucking	Morgan Packing Co., Austin, Tex.	1,424,048
Inter-City Bus	Southeastern Greyhound Lines, Birmingham, Ala.	1,248,143
Laundry	South Shore Laundry, Chicago	968,000
Local Cartage	Columbus Motor Express, Inc., Columbus, Ohio	941,625
Misc. Manufacturing Plants	Corn Products Refining Co., Edgewater, N. J.	784,480
Bakery	American Bread Co., Nashville, Tenn.	779,592
Newspaper	Columbus Citizen, Columbus, Ohio	771,959
Public Utility	Atlantic City Electric Co., Atlantic City, N. J.	708,611
Petroleum (trucks)	Shell Petroleum Corp., Shell Pipe Line Corp., Cushing, Okla.	662,942
Dairies	Consumers Dairy Co., Union City, N. J.	532,680
Ice	Mountain Ice Co., Jersey City, N. J.	489,400**
City Trucking	U. S. Engineer Dept. (South Pacific Division)	483,185
Building Materials	H. Zeef & Sons Gravel Co., Grand Rapids, Mich.	433,838
City Bus	Triple Cities Traction Co., Binghamton, N. Y.	328,315
Department Store	United Parcel Service Co., (East Division of Los Angeles), Los Angeles, Calif.	322,389
Coal and Coke	Rainey-Wood Coke Co., Swedeland, Pa.	314,859

**Denotes unbroken record
Compiled from reports up to September 1, 1936

The FACT remains—
**HYDRAULIC
 BRAKING**

gains every year in popularity!

DIFFERENCES of opinion make horse-racing . . . and likewise make for progress in the automotive industry. If everyone thought the same, there would be little incentive to seek for newer, better things.

There are several ways to stop motor vehicles.

But the FACT remains—

Hydraulic Braking provides sure, smooth, equalized, easy-pedal stopping. That is why so many hundreds of thousands of experienced drivers prefer Hydraulic Braking. That—plus extraordinarily easy servicing—is why so many thousands of dealers prefer Hydraulic Braking. All that—plus the further advantage of extreme simplicity in factory installation—is why such an extremely heavy proportion of leading car, truck and bus manufacturers prefer Hydraulic Braking.

And these, we submit, are most excellent reasons.

HYDRAULIC BRAKE COMPANY
 DETROIT, MICHIGAN

LOCKHEED HYDRAULIC
Four BRAKES Wheel

OFFICIALLY SERVICED THROUGHOUT THE NATION BY WAGNER ELECTRIC CORPORATION
 COMMERCIAL CAR JOURNAL
 OCTOBER, 1936

New Products

Descriptions of the Latest Items Put on the Truck Market by Equipment and Specialty Manufacturers



Purolator Oil Filter

MOTOR IMPROVEMENTS, INC., Newark, N. J., is offering the new N-type Purolator oil filter. The efficacy of the new Purolator, results, according to the company, from the use of a new filtering medium, never before employed in filtration. It is a vegetable product called Multocell.

Purolator engineers claim that it has such powers of absorption that it continues to retain contamination taken from the oil passing through it to a point where even the oil itself will no longer pass.

The new filter consists of an outer casing of steel inside of which is placed the filtering unit, a perforated metal case filled with Multocell. Oil is admitted through an inlet near the bottom of the casing. It passes into the space between the casing and the perforated metal cover of the filter unit and is forced through the filter under engine pressure. It emerges into a central tube running through the filter element through which it flows out into the engine oil stream. The filter element is sealed into metal flanges near the bottom of the filter casing by a heavy cork gasket. This

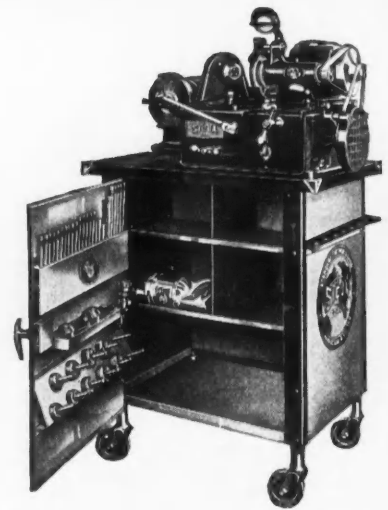
provides a perfect seal between the unfiltered oil outside the element and the filtered oil passing through the outlet pipe as oil enters the filter just above this gasket, under engine pressure, and exerts a downward pressure on the gasket at all times when the engine is in operation. Purolator is provided in two sizes for engines of small and large crankcase oil capacity.

Power-Oilaide

POWER-OILAIDE is a colloidal graphite concentrate for adding to the crankcase lubricant and to the gasoline. One ounce is sufficient for 6 gal. of gasoline and 2 oz. for each qt. of lubricating oil. The Hoffman-Kling Co., Milwaukee, Wis., who market this product say that it will increase power and gasoline mileage as well as prevent wear of engine parts.

Sioux Valve Cabinet

THE No. 677 Sioux Valve Service Cabinet made by Albertson and Co., Sioux City, Iowa, is mounted on hard rubber wheels and is a complete carriage for valve con-



ditioning tools. There is a double electric outlet on the back of the steel cabinet which permits power connections for the tools. Your own assortment of valve tools can be kept in the cabinet or mounted on the top which provides a surface of 30½ in. by 20 in.

New Rich Valve

COMBINATION of a new heat and corrosion-resistant steel with hard, wear-resisting valve seats in a super valve has been announced by Wilcox-Rich Corp., of Detroit, a subsidiary of Eaton Mfg. Co. The new Rich Valve is made of Silchrome-X valve steel, an alloy having special metallurgical characteristics qualifying it for service at higher speeds with increased compressions and more powerful engine

[Other Products Page 101]

New Truck Registrations by Makes by Months

	Autocar	Brockway	Chevrolet	Diamond T	Dodge	Federal	Ford	G. M. C.	International	Mack	Reo	Sterling	Stewart	Studebaker	White-Indiana	Miscellaneous	Total
January.....1936	75	94	15,124	495	6,207	223	14,606	428	4,743	90	339	8	85	143	493	607	43,760
January.....1935	71	86	9,867	550	5,141	152	13,260	858	3,513	114	380	10	42	127	308	280	34,759
February.....1936	57	88	14,978	510	5,556	170	12,226	758	4,365	107	217	4	62	134	408	661	40,301
February.....1935	41	54	11,701	499	3,271	113	14,330	570	3,174	63	292	10	34	107	217	321	34,797
March.....1936	88	127	19,511	634	6,753	205	16,168	1,551	5,395	184	264	17	73	221	477	762	52,430
March.....1935	56	67	13,744	534	4,284	132	16,805	850	3,673	100	389	14	60	135	258	410	41,511
April.....1936	121	179	23,323	784	8,818	271	18,497	2,733	7,308	289	379	21	112	327	700	1,099	64,961
April.....1935	79	109	15,024	568	5,708	177	17,943	870	4,554	159	449	31	62	189	309	554	46,785
May.....1936	109	168	21,443	754	8,507	275	17,971	3,045	6,704	440	399	16	116	358	719	1,159	62,183
May.....1935	78	97	16,284	570	5,381	193	17,591	883	4,807	189	616	5	60	229	294	691	47,968
June.....1936	96	137	19,045	660	7,777	287	16,930	2,820	6,151	427	325	28	113	320	599	1,136	56,851
June.....1935	73	113	17,576	572	4,911	178	17,385	901	4,710	103	439	16	69	218	258	721	48,243
July.....1936	137	207	21,553	846	8,153	280	18,639	3,501	7,167	492	382	22	132	361	748	1,075	63,695
July.....1935	99	114	18,608	593	5,336	202	18,073	857	5,308	147	439	19	85	219	336	808	51,243
Seven Months.....1936	683	1,000	134,977	4,683	51,771	1,711	115,033	14,836	41,833	2,029	2,305	116	693	1,864	4,144	6,499	384,177
Seven Months.....1935	497	640	102,804	3,886	34,032	1,147	115,387	5,789	29,739	875	3,004	105	412	1,224	1,980	3,785	305,306
% Change 7 Months.....	+37	+56	+31	+21	+52	+49	—	+156	+41	+132	—23	+10	+68	+52	+109	+72	+26

COMPARE

... these features
of the new Exide Batteries
for Commercial Vehicles



Exide

COMMERCIAL TYPE BATTERIES

MIPOR AND SLOTTED RUBBER INSULATION

Mipor—the exclusive Exide permanent, latex-base separator...withstands overheating caused by long daylight runs and vibration wear. Slotted rubber plate protectors retain active material and insure capacity during the battery's long life.

HIGH CAPACITY XH-TYPE PLATES—Almost 5/8" higher than standard plates, 2 more plates per cell than usual—all providing extra high starting capacity. XH-Type plates are noted for their long life after years of actual service.

EXTRA DURABLE HARD RUBBER CONTAINER

Specially designed to resist wear, shock, temperature changes, vibration and rough usage.

HEAVY CELL CONNECTORS—Provide extra current carrying capacity with insignificant voltage loss. Permit rapid testing and repairs in case of accidents.

ELECTROLYTE AND SEDIMENT SPACES—Electrolyte and sediment spaces properly balanced. Ample electrolyte space reduces the need for frequent watering. Sediment space of sufficient depth to prevent short circuits.

QUARTER TURN VENT PLUGS—Cut servicing time and by special baffle design prevent spray from reaching top of batteries.

These Commercial-Type Exides equal or exceed the S. A. E. and U. S. Government Standards, both for capacity and life.

Four new Exides with these important features cover the entire range of operating conditions and are designed for the requirements of more than 90% of all commercial vehicles. Write us for the name of the nearest Exide Wholesaler, who will give you complete details on this new line of Exides.

THE ELECTRIC STORAGE BATTERY CO., Philadelphia

The World's Largest Manufacturers of Storage Batteries for Every Purpose

Exide Batteries of Canada, Limited, Toronto

Good Housekeeping

(CONTINUED FROM PAGE 17)

How does Mr. Schuler keep his trucks in running order? How does he keep his replacement expense down, and his operating expense, too?

Mr. Schuler has devised a card system for his drivers. Each night after they have delivered their quota of beer to the thirsty citizens of the five states served by Hamm, they fill out a service card, on which there is a space for every part, bolt or nut in the truck. The mechanics, four of them, check the cards, and make the necessary repairs. In addition they go over every truck from top to bottom, checking parts, and often finding faults which may have escaped the inexperienced eyes of the drivers. In addition, the gas, oil, grease and water are checked, and in winter, the anti-freeze solution too. This inspection card system is working out all right. Mr. Schuler knows as much about trucks as any of his mechanics. After experimenting with oil he came to the conclusion that emulsification, caused by the oil from the cold crankcase running into the warm cylinders, wasn't doing any good. So he devised an insulated crankcase, which will be standard equipment for every Hamm truck this winter.

BRAKES are given a good deal of attention in the Hamm garage. Being a leader in the safety movement, and the originator of the now world-famous first-aid-trained truck drivers, Mr. Schuler knows only too well the damage that can be caused by faulty brakes. So Hamm brakes are tested on an automatic tester which delivers the verdict on a card. Recently one of Hamm's trucks was stolen. The insurance company, always alert for deficiencies in the property of its clients, claimed that the brakes on the stolen truck were faulty. But Mr. Schuler flashed the testing record, which had been made the night before the theft, and which showed the brakes to be in good condition. Needless to say, the insurance company went away feeling the Hamm outfit was on its toes, and it just wouldn't do to raise the rates on them at the present time. As any truck operator knows, insurance is an important item in the accounts payable column. Trucks in perfect condition have fewer accidents, and as a result keep the insurance costs down.

The image displays four forms used for vehicle inspection and maintenance. The top-left form is the 'MOTOR VEHICLE INSPECTION REPORT', which includes sections for 'ENGINE', 'WHEELS AND TIRES', 'SPRINGS AND SHOCKS', 'REAR AXLE', 'STEERING', 'CHASSIS AND FENDERS', 'BODY AND CAB', 'FUEL SYSTEM', 'STARTING, LIGHTING AND IGNITION', 'TRANSMISSION', 'BRAKES', and 'APPEARANCE'. Each section contains a list of specific items to check, such as 'Is motor operating properly?', 'Are tires in good condition?', and 'Are brakes properly adjusted?'. The top-right form is a 'SERVICE CARD' with columns for 'Date', 'Mileage', 'Driver', and 'Service'. The bottom-left form is a 'DAILY MOTOR EQUIPMENT REPORT' with columns for 'Date', 'Mileage', 'Driver', and 'Equipment'. The bottom-right form is a 'MONTHLY MOTOR EQUIPMENT REPORT' with columns for 'Month', 'Mileage', 'Driver', and 'Equipment'.

Some of the Hamm inspection and service forms described in the story

Besides checking on motor, brakes, and body, the shop force paints and letters the trucks. Clean, well painted trucks are an advertisement for any firm handling foodstuffs, which surely is what Hamm handles, and no trucks are allowed out of the shop unless they are washed and well painted.

MR SCHULER is a great believer in experience as a teacher for men who have charge of trucks. He says that were he inclined, he could buy new products for his trucks every day in the year, and at a lower price than he has been paying. But, despite his personal kindness and geniality, he is a hard nut for any salesman to crack. He says, "Every day salesmen come to me with new products, some of which I can use, and some of which I can't. Most of our equipment is standardized to insure economy, flexibility for both drivers and mechanics and efficiency, so I buy very few different lines of equipment. But take grease, for instance, which is not a highly standardized necessity. I am always being approached to buy new transmission and differential grease. I have never dismantled a faulty transmission or differential. Is there any reason why I should buy a cheaper grade of grease? I may be paying a little more for my grease, but the results certainly warrant it."

Cleanliness and good working conditions are particular pets of Mr. Schuler's. When the writer entered the garage, he was particularly impressed with the cleanliness, orderliness, and almost scientific brightness of the huge place. It reminded him of a modern factory devoted to the manufacture of sterile bandages, or at least food products, and that's the truth.

THE garage itself can house one hundred cars in stalls, and there is room for another forty in the aisles. The floor, painted in waterproof grey, was spotlessly clean. There were no puddles of water or grease, largely because of the care given it by employees, and the 4-in. slope toward the center sewers for draining purposes. The steel girders were painted light grey, and the white reflectors of the lights positively shone with cleanliness. The pits for washing and greasing are all made of yellow tile, and illuminated with shaded and frosted lights to lessen or prevent eyestrain.

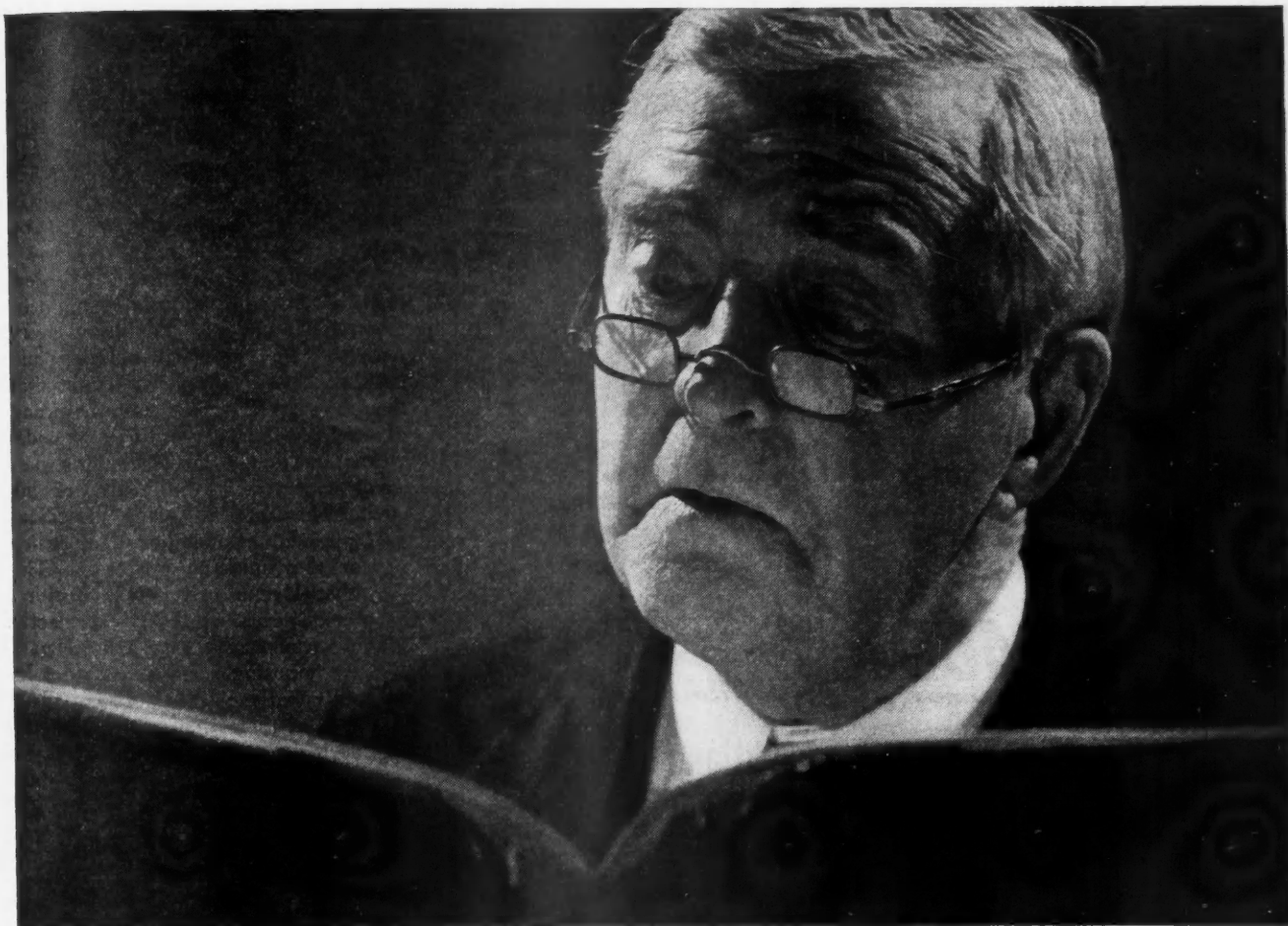
The shop equipment, including lathes, grinders, vises, overhead traveling cranes, and benches, was as orderly as a doctor's office.

Facing a row of spotlessly clean windows are the benches for the mechanics. Each bench is equipped with steel drawers for tools, vises, and an overhead boom for lights, which can be

(TURN TO PAGE 38, PLEASE)

COMMERCIAL CAR JOURNAL
OCTOBER, 1936

"Was I Near-Sighted on Oil Costs!"



"GENTLEMEN, I hate to admit it. Just to save a few cents a gallon, I put my whole fleet of trucks on a *cheap oil* diet.

"For a while I figured I was wise as Solomon. But when maintenance costs started to roll in, I felt like a second-rate sap. For those few cents a gallon I saved, I was paying through the nose.

"Sludge was choking my motors. Carbon on the rings, valves and pistons was doing its dirty work. The oil was growing thin faster than a woman on an 18-day diet.

"Right then and there I switched to Gulflube. Ever since my maintenance figures have kept shrinking. Maybe a similar move would do the same thing for you."

Here are 18 words that can mean money to you: *Gulflube is the only premium quality oil in the world that*

sells at the price of regular oils.

A remarkable refining advancement—the Multi-sol process—reads the riot act to carbon, sludge, gum and other cost-uppers. Gulflube has a high-viscosity index—flows free at zero, yet holds its body under heat. Its film strength is high, too.

As for mileage, *listen*. In AAA supervised tests Gulflube ran rings around every other regular-priced oil in the U. S. A. This mileage has

recently been stepped up another 20 or 25 percent.

If you are a fleet owner, *you should know Gulflube's money-saving story.* Mail the coupon today.

HERE'S AN OFFER THAT
MEANS BIG MONEY
TO YOU!



CCJ-106

GULF, 3800 Gulf Bldg., Pittsburgh, Pa.
Gentlemen:

I should like to get the complete money-saving story on Gulflube.

Name _____

Address _____

City _____ State _____



**GULFLUBE
MOTOR OIL**

(CONTINUED FROM PAGE 36)
focused in any direction or at any desired angle. The machinery which was not in use was covered with clean canvas. Underneath I saw that the parts fairly radiated the brilliance of polished chromium.

The garage and shop are equipped with plenty of fire extinguishers, convenient outlets for electric current, and fireproof containers for waste. There is no waste laying around the floors.

In short, the whole establishment is built for perfect working conditions. Mr. Schuler can explain easily enough why he insists on good lighting, good

equipment, and cleanliness in the shop.

"I HAVE never seen it to fail that a dirty, poorly equipped shop turns out poor work. Cheerful painting and plenty of light, and cleanliness are necessary obligations which every employer of labor must assume. Employers owe their employees the right working conditions. Without them, efficiency decreases and costs mount up. It's like "haywiring" a truck. With the improper equipment, the truck turns in a poor, costly performance.

Morale building, Mr. Schuler con-

siders an important part of his job as supervisor of a crew of husky drivers, whom he worries about in much the same manner that a mother worries about her children. The main thing, he says, is to make them feel that each and every one is an important cog in the machine. Show them you are one of them; learn to know them, their family cares, and always be ready to help and advise them.

"I have always told my men to refuse to drive an ailing truck. I know from experience that it's not only dangerous, but also demoralizing, and I tell them so. That's why you'll find every one of them exercising care in driving and in reporting needed repairs."

The good housekeeping angle extends to the contacts of the Hamm drivers with the outside. You'll find every one of them courteous, obliging and helpful. They have been taught that they are working for a firm to be proud of, and they act accordingly outside.

Another one of Mr. Schuler's personal concerns is the health of his men. They are all given periodical free physical examinations and twice a year they undergo eye tests. The fact that Hamm drivers are healthy, have good eyes, and drive perfectly running trucks may have a large part in their imposing accident record. In 1935 only two accidents were recorded, and both of them were minor. All of the driving personnel has pledged an accidentless year for 1936, and thus far the men have kept their pledge.

Chevrolet Sales Up

August proved another banner month for Chevrolet. Combined sales of cars and trucks were 95,905 units, the second-largest August figure in Chevrolet's history. Truck sales, reported at 23,249, were the highest ever made in August, and the second-highest ever made in any month.

NADA Moves to Detroit

Headquarters of the National Automobile Dealers Association have been moved to Detroit, it was announced today by Arnon N. Benson, general manager of the Association. Offices are now located on the 14th floor, Hotel Statler.

Diamond T Adds Dealers; Ups Sales

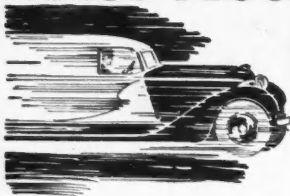
Eighty-five new dealers were appointed by the Diamond T Motor Car Co. during the months of July and August. Sales for the seven months through July show an increase of 21 per cent over the same period in 1935.

FWD Reports Earnings

The Four Wheel Drive Auto Co., Clintonville, Wis., earned a net profit of \$105,285.27 for the fiscal year ending June 30, President Walter A. Olen reported to stockholders September 8th at its annual meeting.

COMMERCIAL CAR JOURNAL
OCTOBER, 1936

FAST ACCELERATION



HEAVIER LOADS SMALLER GEARS

are just **THREE**
of the reasons why

"STURACO" EXTREME PRESSURE ("E.P.")
GEAR AND CHASSIS
LUBRICANTS
★★★★

are required for operating conditions of today,
AND WHY after FIVE years of actual road service these top quality lubricants are becoming adopted by a steadily growing number of large motor fleets of outstanding reputation for economical maintenance.

Change to **"STURACO"**
for 90 days and see the
difference.

IT'S YOUR LOWEST COST
INSURANCE POLICY!

Write for Bulletin No. 4

"STURACO" E. P. LUBRICANTS
ARE THE ORIGINAL DEVELOPMENT OF
D. A. STUART & CO.
ESTABLISHED 1865
GENERAL OFFICES 2727-2753 50 TROY ST. CHICAGO, U.S.A.
BRANCHES IN PRINCIPAL CITIES.



THE BIG THREE
OF MODERN LUBRICATION



5 REASONS *why* YOU SAVE MONEY MR. FLEET OPERATOR WITH HIGH PROFILE GOODYEAR TIRES

1 Goodyear's All-Weather Tread is even broader, flatter—has deeper-cut diamond blocks that give better grip, pull, traction and non-skid protection.

2 Patented pre-shrunk Supertwist Cord, far more elastic than ordinary cords, gives body greater strength, reduces flexing heat, adds thousands of miles to tire life.

3 High Profile Tread Shape increases flexing zone, dissipates heat more readily, provides better cushioning—puts more rubber on ground.

4 Extra-strong Braided Wire Beads protect against swaying loads and overloads, insure firm seating of tire on rim.

5 Chemically Toughened Rubber in both tread and body resists both tread wear and heat—protects against blow-outs.

More miles of tire life—*thousands more*—mean but one thing to truck operators—**LOWER TIRE COSTS!**

But you get BOTH—and more, too—in the new High Profile Goodyear for trucks.

Bigger, sturdier, tougher—you'll find this tire better in every way on the job—better in traction, in cushioning, in driving.

And it's safer. It gives you protection against both skidding and blow-outs—against carcass failure of any kind—not equalled in any other tire.

Why this amazing *plus performance*?

Because only Goodyear—in this new High Profile Truck Tire—offers you the five money-saving, *plus construction features* opposite.

Read them. See the tire. Then **SAVE MONEY!**

Listen to the Goodyear Broadcasts of the Literary Digest Poll for President Monday, Wednesday, Friday Evenings NBC Blue Network.

THERE'S A
GOOD YEAR
BATTERY
now!

GOOD YEAR TRUCK TIRES

money
savers

News

SUMMARY of
the Past Month

Reo to Specialize in Trucks and Buses

Decides to Drop Cars for More Lucrative Commercial Field

The Reo Motor Car Co., has entered the commercial vehicle field exclusively.

Announcement of the company's decision to drop production of passenger cars was made September 4, by D. E. Bates, president and general manager of the company.

In a prepared statement, Mr. Bates states that trucks and buses are no longer considered side lines and that because of the strong financial position of the company, expansion into exclusive production of commercial vehicles is now possible and opportune.

Withdrawal of Reo from the passenger car field will involve no change in the company's distributing arrangement, an official stated. The amount of passenger car business done by Reo dealers in recent years has been relatively small. Under

the new policy Reo dealers will be given a more complete line of trucks and buses, priced competitively with emphasis on the low price volume field. Announcement of new lines and prices is expected to be made about the time of the New York automobile show. Reo also has been exploring the trailer field but as yet no decision has been made to enter this market. Additional coverage in the commercial field is expected to more than make up for dealers' loss of volume resulting from dropping the passenger car.

Inspection Plan Favored by Fleets

81 Bendix Representatives Trained to Give Special Front-End Service

In the short time that it has been in operation the Bendix National Fleet Inspection has gained many subscribers. Among them, according to Frank B. Willis, vice-president, Bendix Products Corp., sponsor of the program are: Armour Packing Co., Cudahy Packing Co., Linde Air Products Co., Liquid Carbonic Corp., Toledo Scale, Southwestern Bell Telephone and Kraft Associated Distributors.

The purpose of the program is to make possible a method whereby fleet operators can have a regular and accurate check on their vehicles even when they do not regularly get into the home shop. For their own protection as well as that of the public fleet operators have found it desirable to know the condition of their vehicles at all times.

There are 2500 Bendix representatives in the country who are equipped to give brake, carburetor, wheel alignment and tire service along with the miscellaneous repair services. Eighty-one members have been trained by Bendix and the number is increasing rapidly. These members have three regular inspections ranging in price from 50 cents to \$1 and the stations are graded according to the work they are equipped to perform.

Sales Leap 13%; Production Up 7%

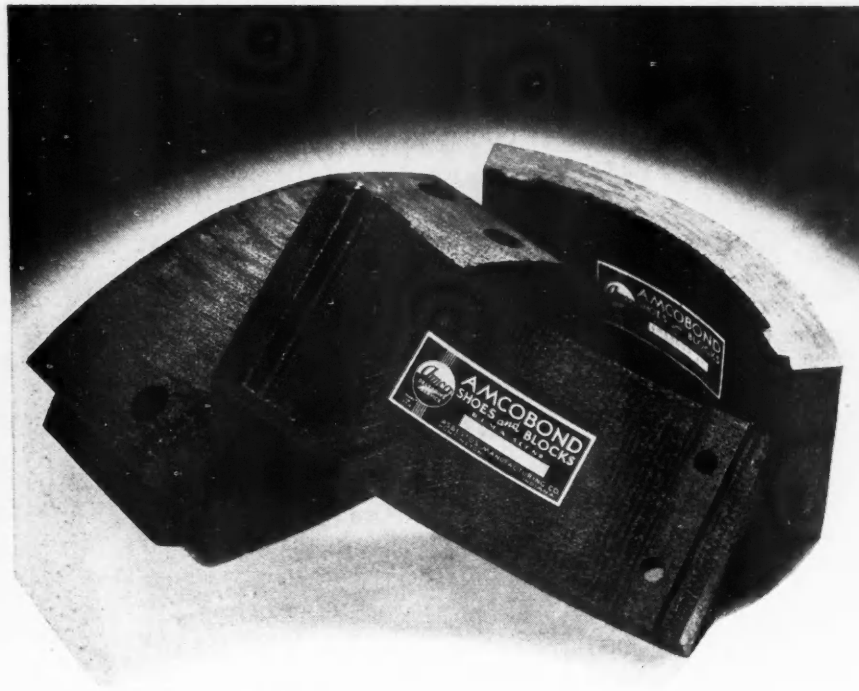
Sales for August Estimated at 57,000; Output is 63,147

Truck sales for the month of August are estimated at 57,000 based on returns from 37 states. This is an increase of 7000 units or 13 per cent over the 50,000 trucks sold in August, 1935. Sales for July were 63,695 units, or 6695 more than August which represents a 10 per cent drop due to anticipated seasonal slack.

Production for August totals 63,147 units. This is an increase of 4205 units, or 7 per cent, over 58,942 units produced in August, 1935. Production for the first eight months of the year total 597,339 units representing an increase of 84,115, or 17 per cent over the 513,224 units produced during the same period of 1935.

[Additional News on p. 42]

COMMERCIAL CAR JOURNAL
OCTOBER, 1936



PUT THESE BIG FELLOWS ON THE BRAKE JOB
THAT IS CAUSING YOU THE MOST TROUBLE.
THAT'S A HARD TEST—BUT IT HAS MADE ONE
FLEET AFTER ANOTHER STANDARDIZE ON AMCO.

BLOCKS
SHOES
ROLL LINING
SEGMENTS



FOR TRUCKS
BUSES
TRAILERS
AND CARS

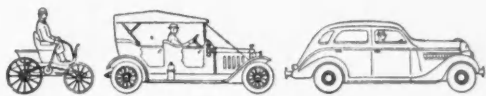
ASBESTOS MANUFACTURING COMPANY
HUNTINGTON, INDIANA



YOU'RE ONLY CHEATING YOURSELF . . .

if you don't get the full facts about

Edison SPARK PLUGS



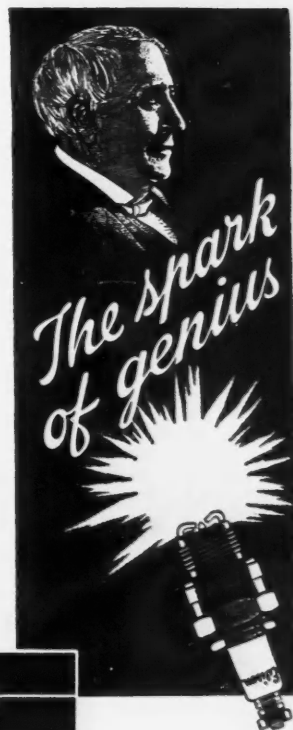
... EDISON... *a name known to every generation of motor car owners . . .*

Back in the days when pedestrians shouted, "Get a horse"—everybody knew the name Edison. Now that the automobile has become a part of every day existence—everybody knows the name Edison! Meanwhile the names of many once popular motor vehicles have been forgotten. But the name Edison is more widely known than ever before . . . and the significance of that name to the user of spark plugs for pleasure or commercial cars becomes increasingly apparent.

Edison Spark Plugs were introduced with

a good name . . . and they have won a good name for themselves on a basis of operation economies and service superiorities. Letters from single truck owners . . . and fleet operators . . . tell performance stories that we are glad to hear—and that you ought to hear!

So why cheat yourself by turning the page—and turning down an opportunity to profit by the kind of spark plug performance that is establishing new records for distance and economy? Right now is the time to get the full facts about Edison Spark Plugs!



EDISON-Splitdorf Corporation · West Orange, N. J.



(CONTINUED FROM PAGE 40)

Hercules Sells Diesels for Replacement in the West

Lon R. Smith, Detroit, who has been identified with the sale of diesel engines for several years, has left Hercules Motors Corp., Canton, O., and is going to the Pacific Coast with distribution privileges for the sale of Hercules diesels for replacement use.

Mr. Smith will organize his own sales and engineering company, probably in Los Angeles, which will buy engines from Hercules and sell to bus and truck operators for replacement only, through dealers to be established in the States of Arizona,

California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington and Wyoming.

Inquiries from concerns interested in the sale of Hercules diesels for vehicle replacements will be carefully investigated before territories are assigned. Then factory training and sales cooperation will be provided in the selection, installing and servicing of engines.

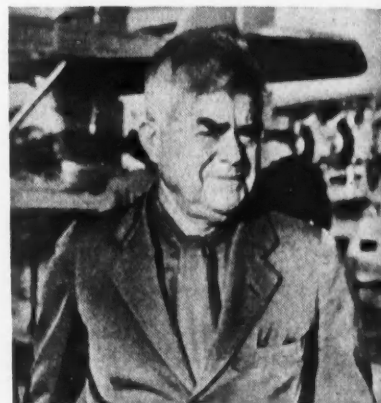
Gill, Sherlock Shift for Goodrich

W. W. Gill has been appointed assistant manager of the truck and bus tire department of the B. F. Goodrich Co. He succeeds A. W. Sherlock who has been named sales supervisor in New York.

Alfred J. Brosseau

The automotive industry lost one of its most prominent figures with the death last month of Alfred J. Brosseau, president of the Mack Motor Corp. His death followed a five-weeks' illness at Mount Sinai Hospital, New York City.

Mr. Brosseau was one of the nation's leading figures in the manufacture of motor trucks and buses and chairman of the board of directors as well as president of Mack Trucks, Inc. He also headed a group of companies affiliated with Mack Trucks, Inc., which he was instrumental in reorganizing.



Since 1928 he had been vice-president of the commercial car division of the Automotive Manufacturers Association and was formerly a vice-president of the United States Chamber of Commerce. He was active on highway committees and in safety promotion.

Mr. Brosseau began his career as a farm implement salesman. Later he entered the automotive industry. In 1904 he became vice-president of Federal Motor Truck Co., and in 1917 president of the International Motor Co., which is now a subsidiary of Mack Trucks, Inc.

He established and endowed the Brosseau Foundation at the University of Michigan in 1927.

Liebreich Joins Rockwell

O. P. Liebreich is now sales engineer for the Rockwell Products Co., Hartford, Conn., manufacturers of the Electroflo hydraulic power brake system.

Greasemen's Convention

The fourth annual convention of the National Association of Lubricating Grease Manufacturers, Inc., will be held at the Stevens Hotel, Chicago, October 12 and 13.

Van Norman Ups Holmes; Buys Plant

Van Norman Machine Tool Co., has purchased the brake drum lathe and brake-shoe business of the L. W. Aff Machine Works, San Francisco. Production has been started at the Van Norman Springfield, Mass., plant.

The company has appointed C. E. Holmes as sales promotion manager.

[Additional News, Page 72]

COMMERCIAL CAR JOURNAL
OCTOBER, 1936



**THROUGH THE
FIRST VITAL**

**500 to 5000
MILES**

▼ It has been a problem in the truck industry—the scuffing and scoring of new gears, working under load for the first time: that critical first 500 to 5000 miles. Other units can be effectively “broken in”; but not an axle—no known practicable method.—until now!

Timken solves the problem—with

TIMKEN Lubri-coted GEARS

▼ By an electro-chemical process, pinion and gear teeth are coated with metallic lubricant—not a permanent lubrication—you still use the right type of oil; but it *does protect gear teeth* through the first vital 500 to 5000 miles.

The net of it is—it works!

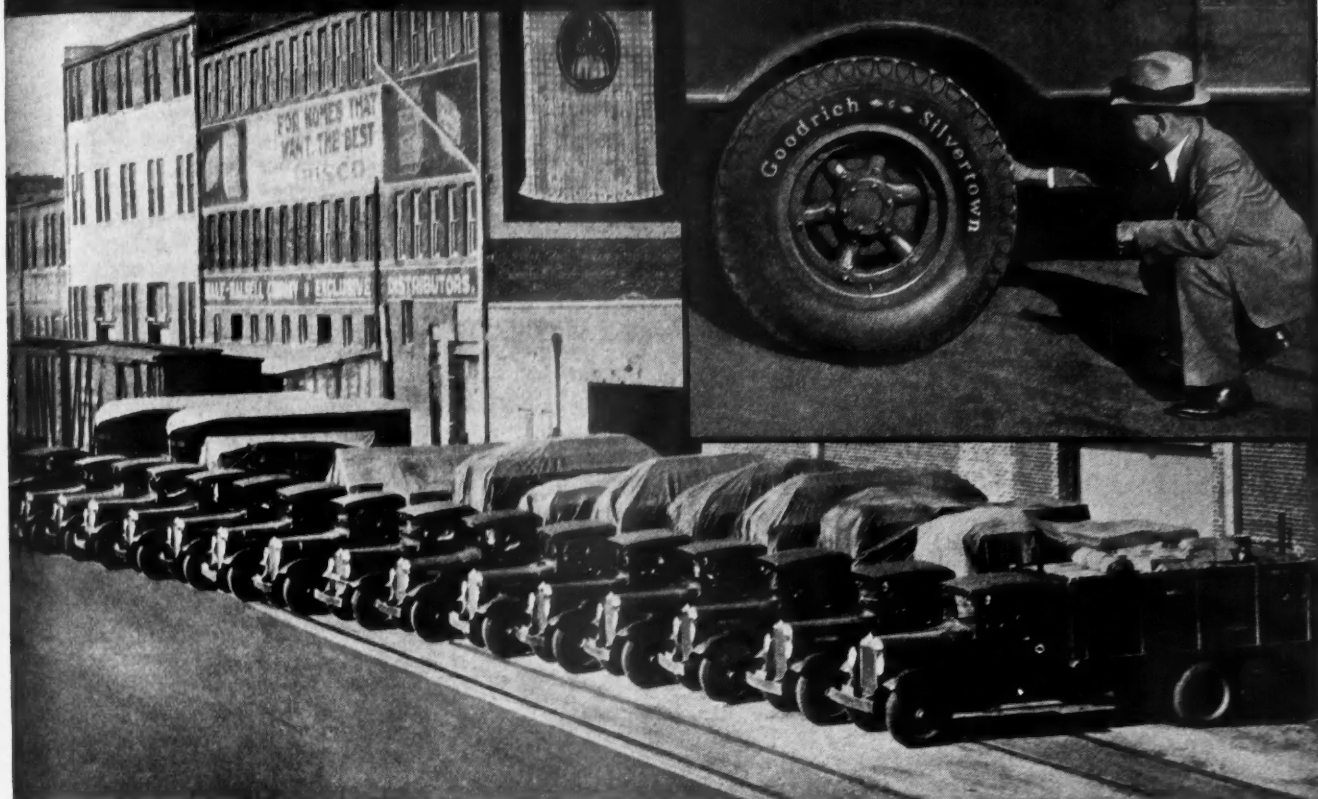
A genuinely important contribution to efficiency and low cost operation and maintenance.

Patents Pending



THE TIMKEN-DETROIT AXLE CO.
Detroit, Michigan

GROCERY SLASHES TIRE COSTS



MILEAGE MORE THAN DOUBLED—COSTS CUT 70% WITH GOODRICH SILVERTOWNS

How would you like to have a tire record like this? Average mileage per tire increased from 15,096 to 36,603; average cost per mile cut from \$.004 to \$.00121.

These figures cover a six-year period of operation of the Hale-Halsell Company, food wholesalers of McAlester, Oklahoma.

This company has 37 pieces of equipment—210 tires on the ground. They operate over all kinds of roads. And they use only Goodrich Triple Protected Silvertowns. Asa C. Caldwell, Supt. of Motor Equipment, will tell you their tires have run as high as 98,000 miles. Many ran 60,000 to 80,000 miles without a change of air. And not one has ever failed in the sidewall!

Every driver in this fleet

watches tires carefully, keeps a record of inflation, maintenance and performance. Proper care plus Triple Protection has slashed tire costs 70 per cent!

Your tire bills will drop, too, if you use the tire built to stand up on the world's toughest hauling jobs.

Tires Triple Protected
Here's the secret of Goodrich performance. Every Silvertown has a new invention in the sidewall. This development—Triple Protection—provides a 3-way safeguard against sidewall breaks—the cause of 80%

of premature failures! When you get this protection, you've gone a long way toward getting tire costs down to rock

bottom. Why not follow the lead of Hale-Halsell? Insist on Triple Protection when you buy. It costs nothing extra.

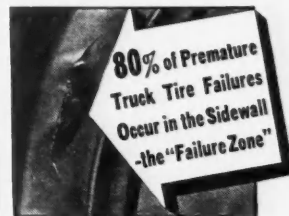
HOW TRIPLE PROTECTION WORKS

1 PLYFLEX—distributes stresses throughout the tire—prevents ply separation—checks local weakness.

2 PLY-LOCK—protects the tire from breaks caused by short

plies tearing loose above the bead.

3 100% FULL-FLOATING CORD—eliminates cross cords from all plies—reduces heat in the tire 12%.



Goodrich *Triple Protected* Silvertowns

SPECIFY THESE NEW SILVERTOWN TIRES FOR TRUCKS AND BUSES

COMMERCIAL CAR JOURNAL
OCTOBER, 1936

Centralizing the Shop Makes Service Sense

(CONTINUED FROM PAGE 25)

Portable high-speed compressed-air greasing equipment is one secret of the economical operating record. The trucks are greased once daily, at an average mileage of less than 500, and this constant lubrication averts many larger repair charges. It has been simmered down, in practice, to the fact that there are very few points on a truck chassis which can be over-lubricated, but a great number which can

suffer rapid wear because of too-little lubrication. The management believes firmly that grease is much less expensive than new parts and labor, or either for that matter.

The use of equipment for which precision-built cylinder sleeves, pistons, pins, rings and replacement main bearings are available makes the repair operations simple, too, although the shop force did put a new crankshaft in a truck on the road once in five and a half hours. An oil filter has been in use for some time; it has been found that filtering oil is an economy practice.

With all this, however, servicing these trucks is made possible by co-operation of drivers and shop men. The drivers report anything wrong, no matter how trivial, and repairs are made before that truck goes out again. This averts road troubles and major service operations as much as possible.

ROAD service calls are handled by the shop anywhere when the cost of the traveling to the truck can be absorbed, repairs being made generally with exchange units, which include generators, radiators, batteries, differentials, brake shoes. Even cylinder heads are carried; if a truck limps into the terminal with a bad valve, a new head is put on and the truck is off. At least once in its life, each truck gets an overhaul so thorough that every detachable piece is removed before the rebuilding starts from the ground up.

Although the company has grown up with the idea of centralization of service, it does not go to extremes. The maximum gasoline tank capacity is 60 gal. Rather than carry more, arrangements have been made for fillings at specified points.

Care of tires is in three major steps. Tires are big enough for the tonnage carried. Duals are well matched as to length of service, make, and especially thickness of tread. The drivers keep tires fully inflated all the time. These things have built up the mileage record; recent opening of some newly-paved roads and avoidance of rocky detours will cause it to rise again.

This outline of service covers physical care of trucks. A program of avoidance of accidents has been followed just as thoroughly.

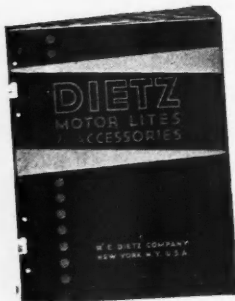
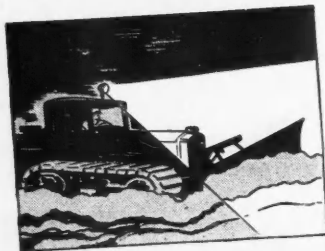
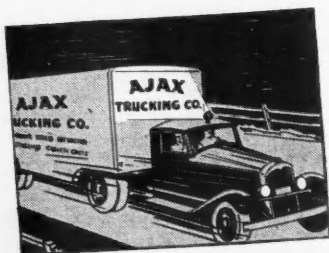
THE principal safety work is with the drivers. Rather stringent regulations for road conduct are prescribed, but it is not the practice to discharge a man for ordinary rules violations. C. B. Jeans, transportation superintendent, believes that anyone could find a justification for discharging a driver by following him fifty miles—if he followed the cold-blooded rule-maker's rules. But so many violations depend upon time and place to make them serious that the company has made it a plan to educate drivers to use common sense and to make it worthwhile for them to work for bettering results.

Only married men are employed as drivers, and they are all bonded. They must have had three years' experience in the company's line of work. When he is employed he is given a physical test, which goes far enough to include a Wasserman test if there is anything

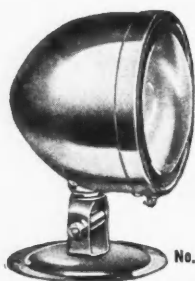
(TURN TO PAGE 46, PLEASE)

COMMERCIAL CAR JOURNAL
OCTOBER, 1936

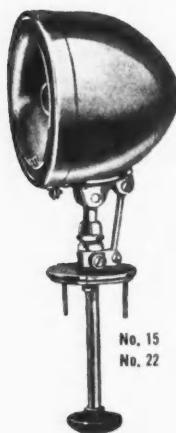
DIETZ SEARCH & FLOODLIGHTS FOR MOTOR TRUCKS, TRACTORS & BUSES



We have recently issued a handsome new Catalog which fully describes the above lamps and illustrates the newest types of modern Safety Lites and Signalling Devices for Trucks, Buses and Automobiles. It may interest you to have a copy on file. If so, just ask for it.



No. 19 FLOODLITE
No. 19 Floodlite is adjustable to desired fixed position on Truck Cab Roof or elsewhere.



No. 15 FLOODLITE
No. 22 SEARCHLITE
No. 15 Floodlite and No. 22 Searchlite can be pointed in any direction desired from within the cab.

Special Lites for Fleets, Utilities & Municipalities

INTERIOR operated lamps are mounted on top of driving cabs so that the handle, which extends through the roof, is accessible to the driver, who is thus enabled to project light on to any object, in any direction. These lamps are supplied either as floodlites or searchlites.

Floodlites of No. 19 type find modern usefulness in illuminating motor truck trailers for advertising purposes, or on garage towing cars, emergency repair trucks, etc. This lamp has a flat base for mounting on top of the driving cab or elsewhere. A universal joint permits the lamp to be turned freely to point in any direction.

Ask Your Supply Dealer to show you these lites.

R. E. DIETZ COMPANY, NEW YORK
PIONEER MAKERS OF VEHICLE LAMPS, FOUNDED 1840

HEAD LIGHTS • TAIL LIGHTS • MARKER LIGHTS • DITCH, FOG & SPOT LIGHTS • DIRECTION SIGNALS
TRUCK FLARES • REAR VISION MIRRORS • FLOOD LIGHTS • CATAPHOTE REFLECTORS • FIRE EXTINGUISHERS

"\$794 less to operate that fleet because we used STANDARD AUTO- MOTIVE ENGINEERING SERVICE!"

STANDARD'S files contain many such examples of fleet operating economy . . . proof that Standard Automotive Engineering Service and Standard Oil Products can materially reduce cost-per-mile.

There are 16 vital spots in every gasoline motor—16 spots that control the operating and gasoline economy in the engines of your fleet, and 6 factors in motor fuel. Let any of these get out of adjustment with your operating requirements and your fleet expenses mount. *But—* tune up, adjust your engines to the peak efficiency of Standard Oil Products *and your fleet cost-per-mile will drop.*

Sound reasoning dictates Stand-

ard Oil Products for lower costs. First, there is completeness of line; you can get the most economical product for your purposes. Second, there is uniformity of product and service readily available throughout the Middlewest. Third, Standard Oil engineers are ready to aid you in checking your mileage costs and to prove Standard's claim that no other products can give you more for your money—regardless of price.

Call your nearest Standard Oil (Indiana) office for information about savings through the "economy check-up", also about the advantages of coupon books, good where ever Standard Oil (Indiana) products are sold.

STANDARD OIL COMPANY (INDIANA)
910 SOUTH MICHIGAN AVENUE • CHICAGO, ILL.

STANDARD OIL PRODUCTS: ISO-VIS "D" • Standard Transmission Oil (Summer and Winter Grades) • Standard Heavy Duty Gear Grease (Standard Wheel Bearing Grease (Medium and Heavy) • Standard Fibre Grease (for Universals) • Standard Pressure Gun Grease (Medium and Heavy) • Standard Water Pump Grease.

Copyright, 1936, Standard Oil Co.



STANDARD OIL COMPANY (INDIANA)
AUTOMOTIVE ENGINEERING SERVICE
LOWERS MILEAGE COSTS



(CONTINUED FROM PAGE 44)
at all in his record to indicate that such a test is possibly needed.

When a man is employed, he is given his truck and is expected to stay with that truck. Variations do occur, but most of the trucks have always been in the same driver's hands.

The benefits from this practice are that the driver learns the speed at which his truck performs best and is then instructed to keep at that speed, if it is 30, 35 or 40-miles-an-hour average. He naturally learns all the peculiarities of the truck, learns to combat any vagaries to get the best results.

This leads him to compare his work with that of others, especially those handling the same type units. The high run so far has been 203,000 miles with only one set of piston rings—before a motor was pulled for rebuilding. Today there are several other units of the same type running around 200,000 miles, with the driver of each trying to beat that record. But scheduled time is maintained. The service is hard, too. The entire territory averages hilly; speed is required to get over the hills, either in high or in compound. The chief drivers' regulation is to show good common sense.



Laying Out Delivery Routes to SAVE TIME

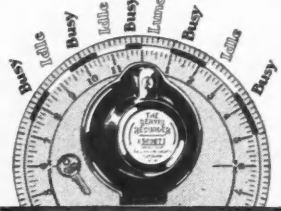
The **SERVIS RECORDER** Shows How!

What is more important than routing and scheduling your trucks so that they are kept busy? But how can you do this without finding out first how long it takes your trucks to cover various sections of your territory? To learn this, you would need a watch or other time-piece to tell you when a truck started out—when it arrived at a certain point—how long it stood, etc. Time information is vital for efficient routing.

Better do this automatically by means of a clock which not only

keeps time but also writes down daily on a piece of paper (the *Servis Recorder* Chart) the very things which you would write down if you were getting the information personally—busy time, idle time, overtime, all delays, etc. Put the *Recorder* on and get its graphic report every day for a week or even a month and then you will know whether your trucks

are doing the right amount of work, or are scheduled correctly. Write for our new booklet. **THE SERVICE RECORDER CO., 1422 Euclid Ave., Cleveland, O.**



The **Servis Recorder**

Tells Every Move Your Truck Makes

Operating Cost Per Mile in Per Cent

Department Cost	Per Cent
Gasoline	13.96
Oil and Grease	2.19
Garage Labor	4.96
Parts	5.84
Tires and Tubes	4.04
Depreciation	4.13
Drivers' Salaries	19.41
Station and Terminal	6.61
Traffic Promotion	5.79
Insurance	5.04
Taxes	3.69
Pickup and Delivery	16.35
Administrative	7.99

All drivers know that the transportation superintendent may be behind them at any time, checking them as to speed, road conduct generally, places at which they stop, how long they stop and what they do when they stop. This checking is done frequently, and other company officials help in it when they are on the road. The drivers know that it will be done; the only thing they do not know is the day when it will be done.

This checking serves a dual purpose also. It serves to restrain the drivers from getting the idea that they are free to do as they please when they leave the terminal. It enables the transportation superintendent to keep his ideas of road conduct up to the minute, helps him formulate a drivers' creed which shall go toward making the motoring public know that Tri-State drivers are the best on the roads, courteous and efficient and safe.

WHEN an accident occurs there is an immediate investigation, as to the why. That "why" is studied and assimilated into the sum of experience, just as the disabled truck itself is studied in the shop, where it may be rebuilt and put back on the road. But if its frame is bent, Ralph Cather, shop foreman, is quite apt to order it dismantled and its usable parts put into the replacement stock. He doesn't believe in straightening frames for the service that these trucks get.

It has been found that cleanliness averts fires on the road; that is one reason for the new fast washing machine. It removes grease completely.

Drivers have excellent hotel facilities provided at the end of each day's run so that they may get full rest, a bath, clean clothes. They enjoy uniforms so distinctive that at least one bus company has patterned after them. Most of all they enjoy knowing that they are expected to remain on the job as a permanent employee and to look upon transport driving as a profession. That gives them a feeling of security which they, in turn, enjoy giving back to the officers of the company in the form of low operating expense.

10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10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+ Rear 32 x 6.
+ Rear 32 x 7.

Line Number	MAKE AND MODEL	Tonnage Rating	GENERAL (See Keynote)				TIRE SIZES				ENGINE DETAILS				TRANSMISSION		REAR AXLE		FRONT AXLE	BRAKES				FRAME					
			Chassis Price	Standard Wheelbase	Max. Wt. B.	Gross Vehicle Weight with Max. Tires	Chassis Wt.	Standard Front and Rear	Dual rear S-single rear	Model	No. of Cylinders, Stroke	Displacement	Comp. Ratio	Torque lb. ft.	H.P. at R.P.M.	Main Bearings Number and Length	Governor Standard	Make and Model	Clear and Type	Drive & Torque	Clearance in High	Make and Model	Make Location	Drum Area	Drum Material	Type	C-A Dimension (Std. W. B.)	Side Rail Dimensions	Type
1	Federal	DM	950	108	120	8000	3000	6.00/20S	7.50/20S	Con W10	4-34x4 1/2	200	4.7	120	50-2700	3-2 1/2x5 1/2	X	WG T9	SE	H 5.66-6.38	5.66-6.38	Cla F212	LAIH	250	250	TX	62 1/2 x 3 1/2	62 1/2 x 3 1/2	D
2	Federal	DM	945	108	120	7500	2950	6.00/20S	7.50/20S	Con W10	4-34x4 1/2	200	4.7	120	50-2700	3-2 1/2x5 1/2	X	WG T9	SE	H 5.66-6.38	5.66-6.38	Cla F212	LAIH	250	250	TX	62 1/2 x 3 1/2	62 1/2 x 3 1/2	D
3	Federal	DM	945	108	120	7500	2950	6.00/20S	7.50/20S	Con W10	4-34x4 1/2	200	4.7	120	50-2700	3-2 1/2x5 1/2	X	WG T9	SE	H 5.66-6.38	5.66-6.38	Cla F212	LAIH	250	250	TX	62 1/2 x 3 1/2	62 1/2 x 3 1/2	D
4	Federal	DM	945	108	120	7500	2950	6.00/20S	7.50/20S	Con W10	4-34x4 1/2	200	4.7	120	50-2700	3-2 1/2x5 1/2	X	WG T9	SE	H 5.66-6.38	5.66-6.38	Cla F212	LAIH	250	250	TX	62 1/2 x 3 1/2	62 1/2 x 3 1/2	D
5	Federal	DM	945	108	120	7500	2950	6.00/20S	7.50/20S	Con W10	4-34x4 1/2	200	4.7	120	50-2700	3-2 1/2x5 1/2	X	WG T9	SE	H 5.66-6.38	5.66-6.38	Cla F212	LAIH	250	250	TX	62 1/2 x 3 1/2	62 1/2 x 3 1/2	D
6	Federal	DM	945	108	120	7500	2950	6.00/20S	7.50/20S	Con W10	4-34x4 1/2	200	4.7	120	50-2700	3-2 1/2x5 1/2	X	WG T9	SE	H 5.66-6.38	5.66-6.38	Cla F212	LAIH	250	250	TX	62 1/2 x 3 1/2	62 1/2 x 3 1/2	D
7	Federal	DM	945	108	120	7500	2950	6.00/20S	7.50/20S	Con W10	4-34x4 1/2	200	4.7	120	50-2700	3-2 1/2x5 1/2	X	WG T9	SE	H 5.66-6.38	5.66-6.38	Cla F212	LAIH	250	250	TX	62 1/2 x 3 1/2	62 1/2 x 3 1/2	D
8	Federal	DM	945	108	120	7500	2950	6.00/20S	7.50/20S	Con W10	4-34x4 1/2	200	4.7	120	50-2700	3-2 1/2x5 1/2	X	WG T9	SE	H 5.66-6.38	5.66-6.38	Cla F212	LAIH	250	250	TX	62 1/2 x 3 1/2	62 1/2 x 3 1/2	D
9	Federal	DM	945	108	120	7500	2950	6.00/20S	7.50/20S	Con W10	4-34x4 1/2	200	4.7	120	50-2700	3-2 1/2x5 1/2	X	WG T9	SE	H 5.66-6.38	5.66-6.38	Cla F212	LAIH	250	250	TX	62 1/2 x 3 1/2	62 1/2 x 3 1/2	D
10	Federal	DM	945	108	120	7500	2950	6.00/20S	7.50/20S	Con W10	4-34x4 1/2	200	4.7	120	50-2700	3-2 1/2x5 1/2	X	WG T9	SE	H 5.66-6.38	5.66-6.38	Cla F212	LAIH	250	250	TX	62 1/2 x 3 1/2	62 1/2 x 3 1/2	D
11	Federal	DM	945	108	120	7500	2950	6.00/20S	7.50/20S	Con W10	4-34x4 1/2	200	4.7	120	50-2700	3-2 1/2x5 1/2	X	WG T9	SE	H 5.66-6.38	5.66-6.38	Cla F212	LAIH	250	250	TX	62 1/2 x 3 1/2	62 1/2 x 3 1/2	D
12	Federal	DM	945	108	120	7500	2950	6.00/20S	7.50/20S	Con W10	4-34x4 1/2	200	4.7	120	50-2700	3-2 1/2x5 1/2	X	WG T9	SE	H 5.66-6.38	5.66-6.38	Cla F212	LAIH	250	250	TX	62 1/2 x 3 1/2	62 1/2 x 3 1/2	D
13	Federal	DM	945	108	120	7500	2950	6.00/20S	7.50/20S	Con W10	4-34x4 1/2	200	4.7	120	50-2700	3-2 1/2x5 1/2	X	WG T9	SE	H 5.66-6.38	5.66-6.38	Cla F212	LAIH	250	250	TX	62 1/2 x 3 1/2	62 1/2 x 3 1/2	D
14	Federal	DM	945	108	120	7500	2950	6.00/20S	7.50/20S	Con W10	4-34x4 1/2	200	4.7	120	50-2700	3-2 1/2x5 1/2	X	WG T9	SE	H 5.66-6.38	5.66-6.38	Cla F212	LAIH	250	250	TX	62 1/2 x 3 1/2	62 1/2 x 3 1/2	D
15	Federal	DM	945	108	120	7500	2950	6.00/20S	7.50/20S	Con W10	4-34x4 1/2	200	4.7	120	50-2700	3-2 1/2x5 1/2	X	WG T9	SE	H 5.66-6.38	5.66-6.38	Cla F212	LAIH	250	250	TX	62 1/2 x 3 1/2	62 1/2 x 3 1/2	D
16	Federal	DM	945	108	120	7500	2950	6.00/20S	7.50/20S	Con W10	4-34x4 1/2	200	4.7	120	50-2700	3-2 1/2x5 1/2	X	WG T9	SE	H 5.66-6.38	5.66-6.38	Cla F212	LAIH	250	250	TX	62 1/2 x 3 1/2	62 1/2 x 3 1/2	D
17	Ford	Commercial	500	131	131	10000	3220	6.00/20S	32x7	Own	8-34x4 1/2	221	5.3	138	80-3800	3-2 1/2x5 1/2	X	Own	FS	U 5.14-6.6	5.14-6.6	Ow 5008	O4IM	350	489	2I	72 1/2 x 3 1/2	72 1/2 x 3 1/2	C
18	Ford	Commercial	500	131	131	10000	3220	6.00/20S	32x7	Own	8-34x4 1/2	221	5.3	138	80-3800	3-2 1/2x5 1/2	X	Own	FS	U 5.14-6.6	5.14-6.6	Ow 5008	O4IM	350	489	2I	72 1/2 x 3 1/2	72 1/2 x 3 1/2	C
19	Ford	Commercial	500	131	131	10000	3220	6.00/20S	32x7	Own	8-34x4 1/2	221	5.3	138	80-3800	3-2 1/2x5 1/2	X	Own	FS	U 5.14-6.6	5.14-6.6	Ow 5008	O4IM	350	489	2I	72 1/2 x 3 1/2	72 1/2 x 3 1/2	C
20	Gen. Mot.	T-14	425	126	126	10000	3160	6.00/16S	7.00/15	Own 213	6-34x4 1/2	213	6.0	152	84-3500	4-2 1/2x5 1/2	X	Own	SE	H 5.67-6.20	5.67-6.20	Ow 5008	O4IH	168	242	2I	58 1/2 x 3 1/2	58 1/2 x 3 1/2	C
21	Gen. Mot.	T-14	425	126	126	10000	3160	6.00/16S	7.00/15	Own 213	6-34x4 1/2	213	6.0	152	84-3500	4-2 1/2x5 1/2	X	Own	SE	H 5.67-6.20	5.67-6.20	Ow 5008	O4IH	168	242	2I	58 1/2 x 3 1/2	58 1/2 x 3 1/2	C
22	Gen. Mot.	T-14	425	126	126	10000	3160	6.00/16S	7.00/15	Own 213	6-34x4 1/2	213	6.0	152	84-3500	4-2 1/2x5 1/2	X	Own	SE	H 5.67-6.20	5.67-6.20	Ow 5008	O4IH	168	242	2I	58 1/2 x 3 1/2	58 1/2 x 3 1/2	C
23	Gen. Mot.	T-14	425	126	126	10000	3160	6.00/16S	7.00/15	Own 213	6-34x4 1/2	213	6.0	152	84-3500	4-2 1/2x5 1/2	X	Own	SE	H 5.67-6.20	5.67-6.20	Ow 5008	O4IH	168	242	2I	58 1/2 x 3 1/2	58 1/2 x 3 1/2	C
24	Gen. Mot.	T-14	425	126	126	10000	3160	6.00/16S	7.00/15	Own 213	6-34x4 1/2	213	6.0	152	84-3500	4-2 1/2x5 1/2	X	Own	SE	H 5.67-6.20	5.67-6.20	Ow 5008	O4IH	168	242	2I	58 1/2 x 3 1/2	58 1/2 x 3 1/2	C
25	Gen. Mot.	T-14	425	126	126	10000	3160	6.00/16S	7.00/15	Own 213	6-34x4 1/2	213	6.0	152	84-3500	4-2 1/2x5 1/2	X	Own	SE	H 5.67-6.20	5.67-6.20	Ow 5008	O4IH	168	242	2I	58 1/2 x 3 1/2	58 1/2 x 3 1/2	C
26	Gen. Mot.	T-14	425	126	126	10000	3160	6.00/16S	7.00/15	Own 213	6-34x4 1/2	213	6.0	152	84-3500	4-2 1/2x5 1/2	X	Own	SE	H 5.67-6.20	5.67-6.20	Ow 5008	O4IH	168	242	2I	58 1/2 x 3 1/2	58 1/2 x 3 1/2	C
27	Gen. Mot.	T-14	425	126	126	10000	3160	6.00/16S	7.00/15	Own 213	6-34x4 1/2	213	6.0	152	84-3500	4-2 1/2x5 1/2	X	Own	SE	H 5.67-6.20	5.67-6.20	Ow 5008	O4IH	168	242	2I	58 1/2 x 3 1/2	58 1/2 x 3 1/2	C
28	Gen. Mot.	T-14	425	126	126	10000	3160	6.00/16S	7.00/15	Own 213	6-34x4 1/2	213	6.0	152	84-3500	4-2 1/2x5 1/2	X	Own	SE	H 5.67-6.20	5.67-6.20	Ow 5008	O4IH	168	242	2I	58 1/2 x 3 1/2	58 1/2 x 3 1/2	C
29	Gen. Mot.	T-14	425	126	126	10000	3160	6.00/16S	7.00/15	Own 213	6-34x4 1/2	213	6.0	152	84-3500	4-2 1/2x5 1/2	X	Own	SE	H 5.67-6.20	5.67-6.20	Ow 5008	O4IH	168	242	2I	58 1/2 x 3 1/2	58 1/2 x 3 1/2	C
30	Gen. Mot.	T-14	425	126	126	10000	3160	6.00/16S	7.00/15	Own 213	6-34x4 1/2	213	6.0	152	84-3500	4-2 1/2x5 1/2	X	Own	SE	H 5.67-6.20	5.67-6.20	Ow 5008	O4IH	168	242	2I	58 1/2 x 3 1/2	58 1/2 x 3 1/2	C
31	Gen. Mot.	T-14	425	126	126	10000	3160	6.00/16S	7.00/15	Own 213	6-34x4 1/2	213	6.0	152	84-3500	4-2 1/2x5 1/2	X	Own	SE	H 5.67-6.20	5.67-6.20	Ow 5008	O4IH	168	242	2I	58 1/2 x 3 1/2	58 1/2 x 3 1/2	C
32	Gen. Mot.	T-14	425	126	126	10000	3160	6.00/16S	7.00/15	Own 213	6-34x4 1/2	213	6.0	152	84-3500	4-2 1/2x5 1/2	X	Own	SE	H 5.67-6.20	5.67-6.20	Ow 5008	O4IH	168	242	2I	58 1/2 x 3 1/2	58 1/2 x 3 1/2	C
33	Gen. Mot.	T-14	425	126	126	10000	3160	6.00/16S	7.00/15	Own 213	6-34x4 1/2	213	6.0	152	84-3500	4-2 1/2x5 1/2	X	Own	SE	H 5.67-6.20	5.67-6.20	Ow 5008	O4IH	168	242	2I	58 1/2 x 3 1/2	58 1/2 x 3 1/2	C
34	Gen. Mot.	T-14	425	126	126	10000	3160	6.00/16S	7.00/15	Own 213	6-34x4 1/2	213	6.0	152	84-3500	4-2 1/2x5 1/2	X	Own	SE	H 5.67-6.20	5.67-6.20	Ow 5008	O4IH	168	242	2I	58 1/2 x 3 1/2	58 1/2 x 3 1/2	C
35	Gen. Mot.	T-14	425	126	126	10000	3160	6.00/16S	7.00/15	Own 213	6-34x4 1/2	213	6.0	152	84-3500	4-2 1/2x5 1/2	X	Own	SE	H 5.67-6.20	5.67-6.20	Ow 5008	O4IH	168	242	2I	58 1/2 x 3 1/2	58 1/2 x 3 1/2	C
36	Gen. Mot.	T-14	425	126	126	10000	3160	6.00/16S	7.00/15	Own 213	6-34x4 1/2	213	6.0	152	84-3500	4-2 1/2x5 1/2	X	Own	SE	H 5.67-6.20	5.67-6.20	Ow 5008	O4IH	168	242	2I	58 1/2 x 3 1/2	58 1/2 x 3 1/2	C
37	Gen. Mot.	T-14	425	126	126	10000	3160	6.00/16S	7.00/15	Own 213	6-34x4 1/2	213	6.0	152	84-3500	4-2 1/2x5 1/2	X	Own	SE	H 5.67-6.20	5.67-6.20	Ow 5008	O4IH	168	242	2I	58 1/2 x 3 1/2	58 1/2 x 3 1/2	C
38	Gen. Mot.	T-14	425	126	126	10000	3160	6.00/16S	7.00/15	Own 213	6-34x4 1/2	213	6.0	152	84-3500	4-2 1/2x5 1/2	X	Own	SE	H 5.67-6.20	5.67-6.20	Ow 5008	O4IH	168	242	2I	58 1/2 x 3 1/2	58 1/2 x 3 1/2	C
39	Gen. Mot.	T-14	425	126	126	10000	3160	6.00/16S	7.00/15	Own 213	6-34x4 1/2	213	6.0	152	84-3500	4-2 1/2x5 1/2	X	Own	SE	H 5.67-6.20	5.67-6.20	Ow 5008	O4IH	168	242	2I	58 1/2 x 3 1/2	58 1/2 x 3 1/2	C

1997 02 06

COMMERCIAL CAR JOURNAL
OCTOBER, 1936

Line Number	MAKE AND MODEL	GENERAL (See Keynote)			TIRE SIZES		ENGINE DETAILS					TRANSMISSION			REAR AXLE		FRONT AXLE			BRAKES				C-A Dimension (Std. W. B.)	FRAME				
		Chassis Price	Standard Wheelbase	Max. Wt. Furnished	Chassis Wt.	(Gross Vehicle Weight with Max. Wt. Furnished)	(Stripped)	Standard	Front and Rear	Dual rear S-single rear	Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	H.P. at Brake R.P.M.	Main Bearings Diameter	Governor Standard	Make and Model	Forward Spd's	Gear and Type	Drive & Torque	Range in High			Make and Model	Make Location Type	Lining Area	Drum Material
1	Coleman	ES22	3800	120	144	12800	7200	9.00/24	9.00/24	Bud K393	6-4 x 4 1/2	308	4.9	2600	103-2600	Y	Fu BL 16	4	W18 CR15	4	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B
2		ES24	5000	130	180	23000	8800	10.25/24	10.25/24	Bud L468	6-4 x 4 1/2	458	5.6	3356	108-2200	Y	Fu BL 16	4	W18 CR15	4	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B
3		ES26	6150	130	180	23000	9600	11.25/24	11.25/24	Bud L625	6-4 x 4 1/2	525	6.4	3356	114-2200	Y	Fu BL 16	4	W18 CR15	4	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B
4		ES28	7200	144	180	24500	10600	11.25/24	11.25/24	Bud L625	6-4 x 4 1/2	525	6.4	3356	114-2200	Y	Fu BL 16	4	W18 CR15	4	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B
5		ES30	7800	144	180	24500	11600	10.50/24	10.50/24	Bud L625	6-4 x 4 1/2	525	6.4	3356	114-2200	Y	Fu BL 16	4	W18 CR15	4	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B
6		ES32	9700	144	180	29000	12400	11.25/24	11.25/24	See L76	6-6 x 5 1/2	779	8.4	4162	126-1800	Y	W BL 714	4	W18 CR15	4	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B
7		ES34	2375	143	180		4420	6.50/20	7.50/20	Wau 6BL	6-3 x 4 1/2	245	5.4	1622	72-3000	N	W BL 714	4	W18 CR15	4	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B
8	Corbitt	F12	3200	140	200		5760	8.25/20	8.25/20	Wau 6MK	6-3 x 4 1/2	245	5.4	1622	72-3000	N	W BL 714	4	W18 CR15	4	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B
9		F14	4500	155	185		5760	8.25/20	9.00/20	Wau 6MK	6-3 x 4 1/2	314	8.240	85-2400	7-3 x 10 1/2	N	W BL 714	4	W18 CR15	4	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B
10		F16	5500	160	200		8100	9.00/20	9.75/22	Wau 6MK	6-4 x 4 1/2	462	4.9	3300	100-2200	N	W BL 714	4	W18 CR15	4	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B
11		F18	10000	170	210		9200	9.75/20	10.50/22	Wau 6MK	6-4 x 4 1/2	517	4.9	3300	100-2200	N	W BL 714	4	W18 CR15	4	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B
12		F20	10000	170	210		11300	10.50/20	11.25/22	Wau 6MK	6-4 x 4 1/2	617	4.9	3300	100-2200	N	W BL 714	4	W18 CR15	4	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B
13		F22	2440	132	156	11200	4700	6.50/20	7.50/20	Wau 6BK	6-4 x 4 1/2	282	5.4	1855	84-3200	Y	Fu BL 633	5	W18 CR15	5	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B
14	F.W.D.	H1	3325	120	160	12800	5500	9.00/20	9.00/20	Wau 6BK	6-4 x 4 1/2	315	4.9	2600	103-2600	Y	Fu BL 633	5	W18 CR15	5	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B
15		H4	3325	120	160	12800	5500	9.00/20	9.00/20	Wau 6BK	6-4 x 4 1/2	315	4.9	2600	103-2600	Y	Fu BL 633	5	W18 CR15	5	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B
16		H6	3325	120	160	12800	5500	9.00/20	9.00/20	Wau 6BK	6-4 x 4 1/2	315	4.9	2600	103-2600	Y	Fu BL 633	5	W18 CR15	5	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B
17		H8	3325	120	160	12800	5500	9.00/20	9.00/20	Wau 6BK	6-4 x 4 1/2	315	4.9	2600	103-2600	Y	Fu BL 633	5	W18 CR15	5	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B
18		H10	3325	120	160	12800	5500	9.00/20	9.00/20	Wau 6BK	6-4 x 4 1/2	315	4.9	2600	103-2600	Y	Fu BL 633	5	W18 CR15	5	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B
19		H12	3325	120	160	12800	5500	9.00/20	9.00/20	Wau 6BK	6-4 x 4 1/2	315	4.9	2600	103-2600	Y	Fu BL 633	5	W18 CR15	5	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B
20		H14	3325	120	160	12800	5500	9.00/20	9.00/20	Wau 6BK	6-4 x 4 1/2	315	4.9	2600	103-2600	Y	Fu BL 633	5	W18 CR15	5	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B
21		H16	3325	120	160	12800	5500	9.00/20	9.00/20	Wau 6BK	6-4 x 4 1/2	315	4.9	2600	103-2600	Y	Fu BL 633	5	W18 CR15	5	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B
22		H18	3325	120	160	12800	5500	9.00/20	9.00/20	Wau 6BK	6-4 x 4 1/2	315	4.9	2600	103-2600	Y	Fu BL 633	5	W18 CR15	5	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B
23		H20	3325	120	160	12800	5500	9.00/20	9.00/20	Wau 6BK	6-4 x 4 1/2	315	4.9	2600	103-2600	Y	Fu BL 633	5	W18 CR15	5	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B
24		H22	3325	120	160	12800	5500	9.00/20	9.00/20	Wau 6BK	6-4 x 4 1/2	315	4.9	2600	103-2600	Y	Fu BL 633	5	W18 CR15	5	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B
25		H24	3325	120	160	12800	5500	9.00/20	9.00/20	Wau 6BK	6-4 x 4 1/2	315	4.9	2600	103-2600	Y	Fu BL 633	5	W18 CR15	5	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B
26		H26	3325	120	160	12800	5500	9.00/20	9.00/20	Wau 6BK	6-4 x 4 1/2	315	4.9	2600	103-2600	Y	Fu BL 633	5	W18 CR15	5	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B
27		H28	3325	120	160	12800	5500	9.00/20	9.00/20	Wau 6BK	6-4 x 4 1/2	315	4.9	2600	103-2600	Y	Fu BL 633	5	W18 CR15	5	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B
28		H30	3325	120	160	12800	5500	9.00/20	9.00/20	Wau 6BK	6-4 x 4 1/2	315	4.9	2600	103-2600	Y	Fu BL 633	5	W18 CR15	5	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B
29		H32	3325	120	160	12800	5500	9.00/20	9.00/20	Wau 6BK	6-4 x 4 1/2	315	4.9	2600	103-2600	Y	Fu BL 633	5	W18 CR15	5	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B
30		H34	3325	120	160	12800	5500	9.00/20	9.00/20	Wau 6BK	6-4 x 4 1/2	315	4.9	2600	103-2600	Y	Fu BL 633	5	W18 CR15	5	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B
31		H36	3325	120	160	12800	5500	9.00/20	9.00/20	Wau 6BK	6-4 x 4 1/2	315	4.9	2600	103-2600	Y	Fu BL 633	5	W18 CR15	5	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B
32		H38	3325	120	160	12800	5500	9.00/20	9.00/20	Wau 6BK	6-4 x 4 1/2	315	4.9	2600	103-2600	Y	Fu BL 633	5	W18 CR15	5	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B
33		H40	3325	120	160	12800	5500	9.00/20	9.00/20	Wau 6BK	6-4 x 4 1/2	315	4.9	2600	103-2600	Y	Fu BL 633	5	W18 CR15	5	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B
34		H42	3325	120	160	12800	5500	9.00/20	9.00/20	Wau 6BK	6-4 x 4 1/2	315	4.9	2600	103-2600	Y	Fu BL 633	5	W18 CR15	5	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B
35		H44	3325	120	160	12800	5500	9.00/20	9.00/20	Wau 6BK	6-4 x 4 1/2	315	4.9	2600	103-2600	Y	Fu BL 633	5	W18 CR15	5	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B
36		H46	3325	120	160	12800	5500	9.00/20	9.00/20	Wau 6BK	6-4 x 4 1/2	315	4.9	2600	103-2600	Y	Fu BL 633	5	W18 CR15	5	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B
37	Indians	12X4	131	Op	Op	4650	6.50/20	7.50/20	Her JXC	6-3 x 4 1/2	282	5.4	176	73-2800	Y	Fu BL 2341	4	W18 CR15	4	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B	
38		12X4	131	Op	Op	4650	6.50/20	7.50/20	Her JXC	6-3 x 4 1/2	282	5.4	176	73-2800	Y	Fu BL 2341	4	W18 CR15	4	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B	
39		12X4	131	Op	Op	4650	6.50/20	7.50/20	Her JXC	6-3 x 4 1/2	282	5.4	176	73-2800	Y	Fu BL 2341	4	W18 CR15	4	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B	
40		12X4	131	Op	Op	4650	6.50/20	7.50/20	Her JXC	6-3 x 4 1/2	282	5.4	176	73-2800	Y	Fu BL 2341	4	W18 CR15	4	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B	
41		12X4	131	Op	Op	4650	6.50/20	7.50/20	Her JXC	6-3 x 4 1/2	282	5.4	176	73-2800	Y	Fu BL 2341	4	W18 CR15	4	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B	
42		12X4	131	Op	Op	4650	6.50/20	7.50/20	Her JXC	6-3 x 4 1/2	282	5.4	176	73-2800	Y	Fu BL 2341	4	W18 CR15	4	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M	TD	78	10x2 1/2 x 3 1/2	B	
43		12X4	131	Op	Op	4650	6.50/20	7.50/20	Her JXC	6-3 x 4 1/2	282	5.4	176	73-2800	Y	Fu BL 2341	4	W18 CR15	4	W18 CR15	H	4 66-8.05	W18 CR15	W2/41M					

Line Number	GENERAL (See Keynote)				ENGINE DETAILS										TRANSMISSION		REAR AXLE		FRONT AXLE	BRAKES				C-A Dimension (Std. W. B.)	Side Rail Dimensions	FRAME									
	MAKE MODEL	Tonnage Rating	Chassis Price	Standard Wheelbase	Max. W. B.	Gross Vehicle Weight with Max. Tires	(Stripped) Chassis Wt.	TIRE SIZES		Standard Rear	Furnished	Make and Model	No. of Cylinders	Displacement	Comp. Ratio	Torque lb. ft.	H.P. at R.P.M.	Main Bearings Number, Diameter, Length		Governor Standard	Make and Model	Forward Spd's	Make and Model				Gear and Type	Drive & Torque	Gear Ratio in High	Make and Model	Make Location	Drum Area	Drum Material	Hand Location	Type
								Deduct rear S-spring rear	Maximum Tire Size																										
1	LeMoon 700 4R 5-6	4475	187 100	187 100	187 100	187 100	8200 8.25/2013	8.25/20	Wau 68RL	6-4 x 5 1/2	462	4.500	98	2000	7-3x13 1/2	Y	BL 5551	T1 63703-07H	W F	4 F	4-7.4	Tim 35000H	LAIHV	525	1033	CD	108	9x3x6	BB						
2	LeMoon 700 4R 5-6	4475	187 100	187 100	187 100	187 100	8200 8.25/2013	8.25/20	Wau 68RL	6-4 x 5 1/2	462	4.500	98	2000	7-3x13 1/2	Y	BL 5551	T1 63703-07H	W F	4 F	4-7.4	Tim 35000H	LAIHV	525	1033	CD	108	9x3x6	BB						
3	LeMoon 700 4R 5-6	4475	187 100	187 100	187 100	187 100	8200 8.25/2013	8.25/20	Wau 68RL	6-4 x 5 1/2	462	4.500	98	2000	7-3x13 1/2	Y	BL 5551	T1 63703-07H	W F	4 F	4-7.4	Tim 35000H	LAIHV	525	1033	CD	108	9x3x6	BB						
4	LeMoon 700 4R 5-6	4475	187 100	187 100	187 100	187 100	8200 8.25/2013	8.25/20	Wau 68RL	6-4 x 5 1/2	462	4.500	98	2000	7-3x13 1/2	Y	BL 5551	T1 63703-07H	W F	4 F	4-7.4	Tim 35000H	LAIHV	525	1033	CD	108	9x3x6	BB						
5	LeMoon 700 4R 5-6	4475	187 100	187 100	187 100	187 100	8200 8.25/2013	8.25/20	Wau 68RL	6-4 x 5 1/2	462	4.500	98	2000	7-3x13 1/2	Y	BL 5551	T1 63703-07H	W F	4 F	4-7.4	Tim 35000H	LAIHV	525	1033	CD	108	9x3x6	BB						
6	LeMoon 700 4R 5-6	4475	187 100	187 100	187 100	187 100	8200 8.25/2013	8.25/20	Wau 68RL	6-4 x 5 1/2	462	4.500	98	2000	7-3x13 1/2	Y	BL 5551	T1 63703-07H	W F	4 F	4-7.4	Tim 35000H	LAIHV	525	1033	CD	108	9x3x6	BB						
7	LeMoon 700 4R 5-6	4475	187 100	187 100	187 100	187 100	8200 8.25/2013	8.25/20	Wau 68RL	6-4 x 5 1/2	462	4.500	98	2000	7-3x13 1/2	Y	BL 5551	T1 63703-07H	W F	4 F	4-7.4	Tim 35000H	LAIHV	525	1033	CD	108	9x3x6	BB						
8	LeMoon 700 4R 5-6	4475	187 100	187 100	187 100	187 100	8200 8.25/2013	8.25/20	Wau 68RL	6-4 x 5 1/2	462	4.500	98	2000	7-3x13 1/2	Y	BL 5551	T1 63703-07H	W F	4 F	4-7.4	Tim 35000H	LAIHV	525	1033	CD	108	9x3x6	BB						
9	LeMoon 700 4R 5-6	4475	187 100	187 100	187 100	187 100	8200 8.25/2013	8.25/20	Wau 68RL	6-4 x 5 1/2	462	4.500	98	2000	7-3x13 1/2	Y	BL 5551	T1 63703-07H	W F	4 F	4-7.4	Tim 35000H	LAIHV	525	1033	CD	108	9x3x6	BB						
10	LeMoon 700 4R 5-6	4475	187 100	187 100	187 100	187 100	8200 8.25/2013	8.25/20	Wau 68RL	6-4 x 5 1/2	462	4.500	98	2000	7-3x13 1/2	Y	BL 5551	T1 63703-07H	W F	4 F	4-7.4	Tim 35000H	LAIHV	525	1033	CD	108	9x3x6	BB						
11	LeMoon 700 4R 5-6	4475	187 100	187 100	187 100	187 100	8200 8.25/2013	8.25/20	Wau 68RL	6-4 x 5 1/2	462	4.500	98	2000	7-3x13 1/2	Y	BL 5551	T1 63703-07H	W F	4 F	4-7.4	Tim 35000H	LAIHV	525	1033	CD	108	9x3x6	BB						
12	LeMoon 700 4R 5-6	4475	187 100	187 100	187 100	187 100	8200 8.25/2013	8.25/20	Wau 68RL	6-4 x 5 1/2	462	4.500	98	2000	7-3x13 1/2	Y	BL 5551	T1 63703-07H	W F	4 F	4-7.4	Tim 35000H	LAIHV	525	1033	CD	108	9x3x6	BB						
13	LeMoon 700 4R 5-6	4475	187 100	187 100	187 100	187 100	8200 8.25/2013	8.25/20	Wau 68RL	6-4 x 5 1/2	462	4.500	98	2000	7-3x13 1/2	Y	BL 5551	T1 63703-07H	W F	4 F	4-7.4	Tim 35000H	LAIHV	525	1033	CD	108	9x3x6	BB						
14	LeMoon 700 4R 5-6	4475	187 100	187 100	187 100	187 100	8200 8.25/2013	8.25/20	Wau 68RL	6-4 x 5 1/2	462	4.500	98	2000	7-3x13 1/2	Y	BL 5551	T1 63703-07H	W F	4 F	4-7.4	Tim 35000H	LAIHV	525	1033	CD	108	9x3x6	BB						
15	LeMoon 700 4R 5-6	4475	187 100	187 100	187 100	187 100	8200 8.25/2013	8.25/20	Wau 68RL	6-4 x 5 1/2	462	4.500	98	2000	7-3x13 1/2	Y	BL 5551	T1 63703-07H	W F	4 F	4-7.4	Tim 35000H	LAIHV	525	1033	CD	108	9x3x6	BB						
16	LeMoon 700 4R 5-6	4475	187 100	187 100	187 100	187 100	8200 8.25/2013	8.25/20	Wau 68RL	6-4 x 5 1/2	462	4.500	98	2000	7-3x13 1/2	Y	BL 5551	T1 63703-07H	W F	4 F	4-7.4	Tim 35000H	LAIHV	525	1033	CD	108	9x3x6	BB						
17	LeMoon 700 4R 5-6	4475	187 100	187 100	187 100	187 100	8200 8.25/2013	8.25/20	Wau 68RL	6-4 x 5 1/2	462	4.500	98	2000	7-3x13 1/2	Y	BL 5551	T1 63703-07H	W F	4 F	4-7.4	Tim 35000H	LAIHV	525	1033	CD	108	9x3x6	BB						
18	LeMoon 700 4R 5-6	4475	187 100	187 100	187 100	187 100	8200 8.25/2013	8.25/20	Wau 68RL	6-4 x 5 1/2	462	4.500	98	2000	7-3x13 1/2	Y	BL 5551	T1 63703-07H	W F	4 F	4-7.4	Tim 35000H	LAIHV	525	1033	CD	108	9x3x6	BB						
19	LeMoon 700 4R 5-6	4475	187 100	187 100	187 100	187 100	8200 8.25/2013	8.25/20	Wau 68RL	6-4 x 5 1/2	462	4.500	98	2000	7-3x13 1/2	Y	BL 5551	T1 63703-07H	W F	4 F	4-7.4	Tim 35000H	LAIHV	525	1033	CD	108	9x3x6	BB						
20	LeMoon 700 4R 5-6	4475	187 100	187 100	187 100	187 100	8200 8.25/2013	8.25/20	Wau 68RL	6-4 x 5 1/2	462	4.500	98	2000	7-3x13 1/2	Y	BL 5551	T1 63703-07H	W F	4 F	4-7.4	Tim 35000H	LAIHV	525	1033	CD	108	9x3x6	BB						
21	LeMoon 700 4R 5-6	4475	187 100	187 100	187 100	187 100	8200 8.25/2013	8.25/20	Wau 68RL	6-4 x 5 1/2	462	4.500	98	2000	7-3x13 1/2	Y	BL 5551	T1 63703-07H	W F	4 F	4-7.4	Tim 35000H	LAIHV	525	1033	CD	108	9x3x6	BB						
22	LeMoon 700 4R 5-6	4475	187 100	187 100	187 100	187 100	8200 8.25/2013	8.25/20	Wau 68RL	6-4 x 5 1/2	462	4.500	98	2000	7-3x13 1/2	Y	BL 5551	T1 63703-07H	W F	4 F	4-7.4	Tim 35000H	LAIHV	525	1033	CD	108	9x3x6	BB						
23	LeMoon 700 4R 5-6	4475	187 100	187 100	187 100	187 100	8200 8.25/2013	8.25/20	Wau 68RL	6-4 x 5 1/2	462	4.500	98	2000	7-3x13 1/2	Y	BL 5551	T1 63703-07H	W F	4 F	4-7.4	Tim 35000H	LAIHV	525	1033	CD	108	9x3x6	BB						
24	LeMoon 700 4R 5-6	4475	187 100	187 100	187 100	187 100	8200 8.25/2013	8.25/20	Wau 68RL	6-4 x 5 1/2	462	4.500	98	2000	7-3x13 1/2	Y	BL 5551	T1 63703-07H	W F	4 F	4-7.4	Tim 35000H	LAIHV	525	1033	CD	108	9x3x6	BB						
25	LeMoon 700 4R 5-6	4475	187 100	187 100	187 100	187 100	8200 8.25/2013	8.25/20	Wau 68RL	6-4 x 5 1/2	462	4.500	98	2000	7-3x13 1/2	Y	BL 5551	T1 63703-07H	W F	4 F	4-7.4	Tim 35000H	LAIHV	525	1033	CD	108	9x3x6	BB						
26	LeMoon 700 4R 5-6	4475	187 100	187 100	187 100	187 100	8200 8.25/2013	8.25/20	Wau 68RL	6-4 x 5 1/2	462	4.500	98	2000	7-3x13 1/2	Y	BL 5551	T1 63703-07H	W F	4 F	4-7.4	Tim 35000H	LAIHV	525	1033	CD	108	9x3x6	BB						
27	LeMoon 700 4R 5-6	4475	187 100	187 100	187 100	187 100	8200 8.25/2013	8.25/20	Wau 68RL	6-4 x 5 1/2	462	4.500	98	2000	7-3x13 1/2	Y	BL 5551	T1 63703-07H	W F	4 F	4-7.4	Tim 35000H	LAIHV	525	1033	CD	108	9x3x6	BB						
28	LeMoon 700 4R 5-6	4475	187 100	187 100	187 100	187 100	8200 8.25/2013	8.25/20	Wau 68RL	6-4 x 5 1/2	462	4.500	98	2000	7-3x13 1/2	Y	BL 5551	T1 63703-07H	W F	4 F	4-7.4	Tim 35000H	LAIHV	525	1033	CD	108	9x3x6	BB						
29	LeMoon 700 4R 5-6	4475	187 100	187 100	187 100	187 100	8200 8.25/2013	8.25/20	Wau 68RL	6-4 x 5 1/2	462	4.500	98	2000	7-3x13 1/2	Y	BL 5551	T1 63703-07H	W F	4 F	4-7.4	Tim 35000H	LAIHV	525	1033	CD	108	9x3x6	BB						
30	LeMoon 700 4R 5-6	4475	187 100	187 100	187 100	187 100	8200 8.25/2013	8.25/20	Wau 68RL	6-4 x 5 1/2	462	4.500	98	2000	7-3x13 1/2	Y	BL 5551	T1 63703-07H	W F	4 F	4-7.4	Tim 35000H	LAIHV	525	1033	CD	108	9x3x6	BB						
31	LeMoon 700 4R 5-6	4475	187 100	187 100	187 100	187 100	8200 8.25/2013	8.25/20	Wau 68RL	6-4 x 5 1/2	462	4.500	98	2000	7-3x13 1/2	Y	BL 5551	T1 63703-07H	W F	4 F	4-7.4	Tim 35000H	LAIHV	525	1033	CD	108	9x3x6	BB						
32	LeMoon 700 4R 5-6	4475	187 100	187 100	187 100	187 100	8200 8.25/2013	8.25/20	Wau 68RL	6-4 x 5 1/2	462	4.500	98	2000	7-3x13 1/2	Y	BL 5551	T1 63703-07H	W F	4 F	4-7.4	Tim 35000H	LAIHV	525	1033	CD	108	9x3x6	BB						
33	LeMoon 700 4R 5-6	4475	187 100	187 100	187 100	187 100	8200 8.25/2013	8.25/20	Wau 68RL	6-4 x 5 1/2	462	4.500	98	2000	7-3x13 1/2	Y	BL 5551	T1 63703-07H	W F	4 F	4-7.4	Tim 35000H	LAIHV	525	1033	CD	108	9x3x6	BB						
34	LeMoon 700 4R 5-6	4475	187 100	187 100	187 100	187 100	8200 8.25/2013	8.25/20	Wau 68RL	6-4 x 5 1/2	462	4.500	98	2000	7-3x13 1/2	Y	BL 5551	T1 63703-07H	W F	4 F	4-7.4	Tim 35000H	LAIHV	525	1033	CD	108	9x3x6	BB						
35	LeMoon 700 4R 5-6	4475	187 100	187 100	187 100	187 100	8200 8.25/2013	8.25/20	Wau 68RL	6-4 x 5 1/2	462	4.500	98	2000	7-3x13 1/2	Y	BL 5551	T1 63703-07H	W F	4 F	4-7.4	Tim 35000H	LAIHV	525	1033	CD	108	9x3x6	BB						
36	LeMoon 700 4R 5-6	4475	187 100	187 100	187 100	187 100	8200 8.25/2013	8.25/20	Wau 68RL	6-4 x 5 1/2	462	4.500	98	2000	7-3x13 1/2	Y	BL 5551	T1 63703-07H	W F	4 F	4-7.4	Tim 35000H	LAIHV	525	1033	CD	108	9x3x6	BB						
37	LeMoon 700 4R 5-6	4475	187 100	187 100	187 100	187 100	8200 8.25/2013	8.25/20	Wau 68RL	6-4 x 5 1/2	462	4.500	98	2000	7-3x13 1/2	Y	BL 5551	T1 63703-07H	W F	4 F	4-7.4	Tim 35000H	LAIHV	525	1033	CD	108	9x3x6	BB						
38	LeMoon 700 4R 5-6	4475	187 100	187 100	187 100	187 100	8200 8.25/2013	8.25/20	Wau 68RL	6-4 x 5 1/2	462	4.500	98	2000	7-3x13 1/2	Y																			

Third-Axle Specifications Corrections

The following are corrections made by manufacturers to the third-axle specifications published in the September issue:

ACME—Column 3—Price of Model 50 now 320. Price of Model 60H now 350.

GUILDER—Column 14—Model L.
Brake size is 17¼ x 4.

LITTLEGIANT—Column 11—Model 6 ton. Axle size is $2\frac{3}{8}$. Model 10 ton. Axle size is $5\frac{1}{2}$.

THORNTON TANDEM—Column 16—Model AC. Number of points of frame support is 3. Eliminate 3 (first digit) in column 17.

TIMKEN—Column 4—Model SBT. 800H. Weight does not include wheels, rims and tires.

TRUXMORE—Column 11—Model
40. Axle size is 3½.

TRACTOR—Column 4—Model HLF. Weight is 1331. Model HLC weight is 1302. Model HLD weight is 1317. Model HLL weight is 1538. Model HLR weight is 2297. Model HR weight is 2959. **Column 15—Model HLR.** Brake lining area is 205. Model HR. Brake lining area is 251. **Column 12—All models.** Add V (vacuum).

UTILITY—Column 3—Model 15. Price is 303. Column 14—Model 25. Brake drum diameter and width is 16 x 3 1/2. Model 35—brake drum diameter and width is 17 x 4. Column 15—Model 25. Brake lining area is 210. Model 35—brake lining area is 264.

Semi-Trailer Specifications Corrections

EDWARDS—Column 27—Model A.
41. Beam section dimension is
4½ x ½.

Two Wheel

UTILITY—Column 2—Model SW2. Price is 635. Model SW3—price is 766. Model SW4—price is 1015. Model SW5—price is 1154. Models SW2 and SW3—Column 23—Brake lining area is 210. Models SW4, SW5—Column 21. Brake drum diameter and width is 17 x 4. Column 23—Brake lining area is 264.

Four Wheel Trailers

UTILITY—Column 2—Model SWX6. Price is 950. Model SWX8—Price is 1252. Model SWX9—Price is 1670. Model SWX10—Price is 1943. Column 23—Models SWX8, SWX6. Brake lining area is 420. Models SWX9, SWX10—Brake lining area is 528.

Buda Parrish Chief Engineer

Walter A. Parrish has been appointed chief engineer of the Buda Co., Harvey, Ill. He succeeds Carl C. Hinkley who died recently.

The CCC—A Truck Driver Training School

(CONTINUED FROM PAGE 15)

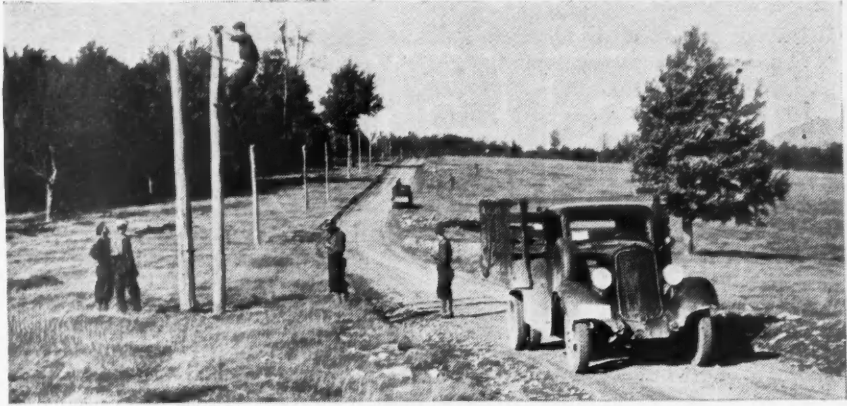
Under the latter division, drivers are educated to know and avoid danger. Classes are conducted by experienced men, under the direction of a safety advisory committee of three men. Safety is stressed and first-aid is taught. Safety meetings are held weekly with safety talks by safety experts and safety suggestions are discussed by the enrollees.

A DRIVER who has an accident is immediately grounded for a period of 30 days and given other work. During this grounding period, a complete investigation is made. Procedure is to make a narrative report to the regional supervisor. A man from the regional office and the forestry headquarters (if the accident occurs in a CCC camp under the Forestry Department) make a joint investigation. These investigators make a complete report of the accident, determine responsibility and recommend punishment to their regional supervisor and to Washington. Drivers who have three minor accidents are grounded permanently. A driver whose first accident is a serious one is immediately and permanently grounded. A serious accident involves permanent injury, loss of life or heavy property damage. Of course, there is no lack of driver material. So effective has the safety education proved that motor vehicle accidents have averaged no more than about 3 per cent of all accidents in CCC camps since safety efforts were started in 1935.

Trucks handled by the enrollees at CCC camps consist of approximately 4000 $\frac{1}{2}$ -ton pick-ups, 13,000 $1\frac{1}{2}$ -ton units (mostly stake bodies) and 5500 2-ton dump trucks. To these may be added the 14,000 tractors already mentioned, and an undetermined number of four wheel drive units. All automotive equipment is governed at 35 m.p.h. Approximately \$25,000,000 has been shelled out for truck equipment alone.

This equipment is used for taking men to work, hauling materials to projects, road construction work, line work, soil conservation, hauling fire fighting apparatus, transporting horses, trees, etc., just to mention a few.

ANY operation with so huge a fleet must necessarily present a dizzy maintenance problem and when that fleet is scattered throughout the country at the rate of about 10 trucks per camp, topnotch maintenance becomes doubly difficult. To lick the problem, three service set-ups were established. (The following is essentially the set-up in



Line work is an important part of the job of the CCC enrollee. Numerous trucks are used to tote the equipment

Gatke

Brake Lining

EXTREMELY SATISFACTORY and ECONOMICAL

*Large or Small—
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Stops Them All*

Holland Coal Company

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Gatke Corporation,
228 North LaSalle Street,
Chicago, Illinois.

Gentlemen:

For over five years we have been using Gatke Brake Linings exclusively on our fleet and they have proven both extremely satisfactory and economical.

Particularly on our A C Mack Jack-shaft in good stead. Previous to our standardizing on Gatke, we were constantly running tests, and were unable to get anything that would give us the desired combination of long wear and good stopping.

In spite of the severe operating conditions of heavy loads, coal dust grease slinging from the driving chain and the congested traffic on Chicago streets, Gatke Heavy Duty has given us more than a year of excellent service or the equivalent of at least 18,000 miles with but very few intermediate adjustments.

Believing you to be interested in hearing from us, we are

Yours very truly,
HOLLAND COAL COMPANY

Charles...

Gatke

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Name _____

Address _____

the Forestry Service under whose division are half of all CCC camps).

(1) Central shops with rolling field shops.

(2) Central field shops with rolling shops.

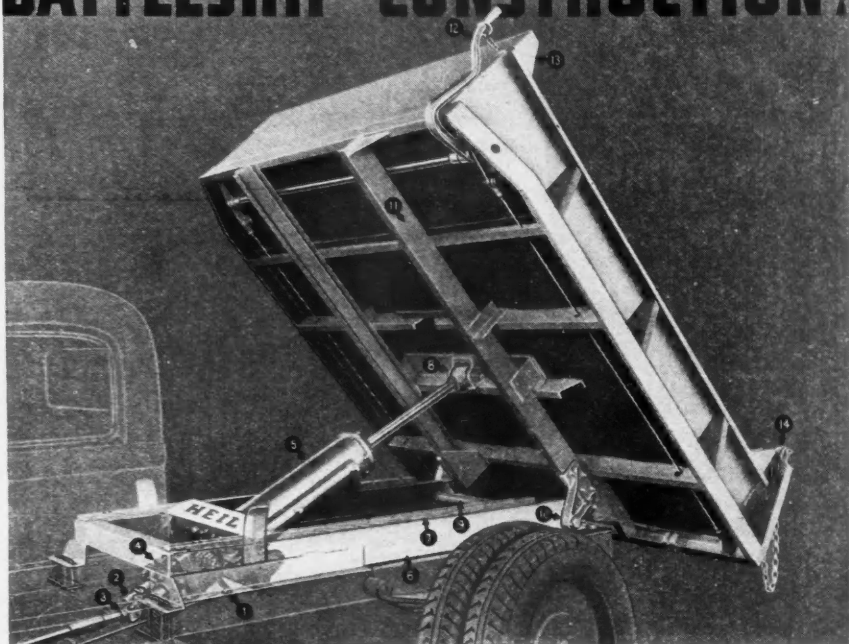
(3) Camp shops with major repair work farmed out.

The first, or central shops are regional shops. The 48 states are divided into nine such regions. Central shops boast a shop superintendent, shop foreman, machinists, mechanics, warehousemen, blacksmiths, clerks and help usually selected from CCC camps. Central shops furnish equipment to the



Flood control is part of the CCC job in which trucks play a large role

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**HOISTS AND BODIES
ROAD SCRAPERS
TRUCK TANKS
SNOW PLOWS
STORAGE TANKS
DEHYDRATORS
BOTTLE WASHERS
OIL BURNERS
WATER SYSTEMS**

Heil hydraulic dump units are built like a battleship to insure dependable operation under the toughest kind of dumping conditions . . . These Heil super construction features tell the story: (1) Cab controls raise, lower and hold body for spreading; (2) Alternate pump drive simplifies installation; (3) Heavy duty universal joint; (4) Integral hoist pump; (5) Cast nickel-iron cylinder having honed bore; (6) Reinforced frame; (7) Wood sills; (8) Hoist piston head fastens to body subframe; (9) Tubular cross-brace; (10) Sturdy, cast steel hinges; (11) Reinforced body subframe; (12) Accessible tailgate control handle; (13) Front and rear higher than sides; (14) Offset tailgate hinges . . . By all means get Heil Hoist, Body and Tank recommendations before you buy . . . Send for free literature, address:

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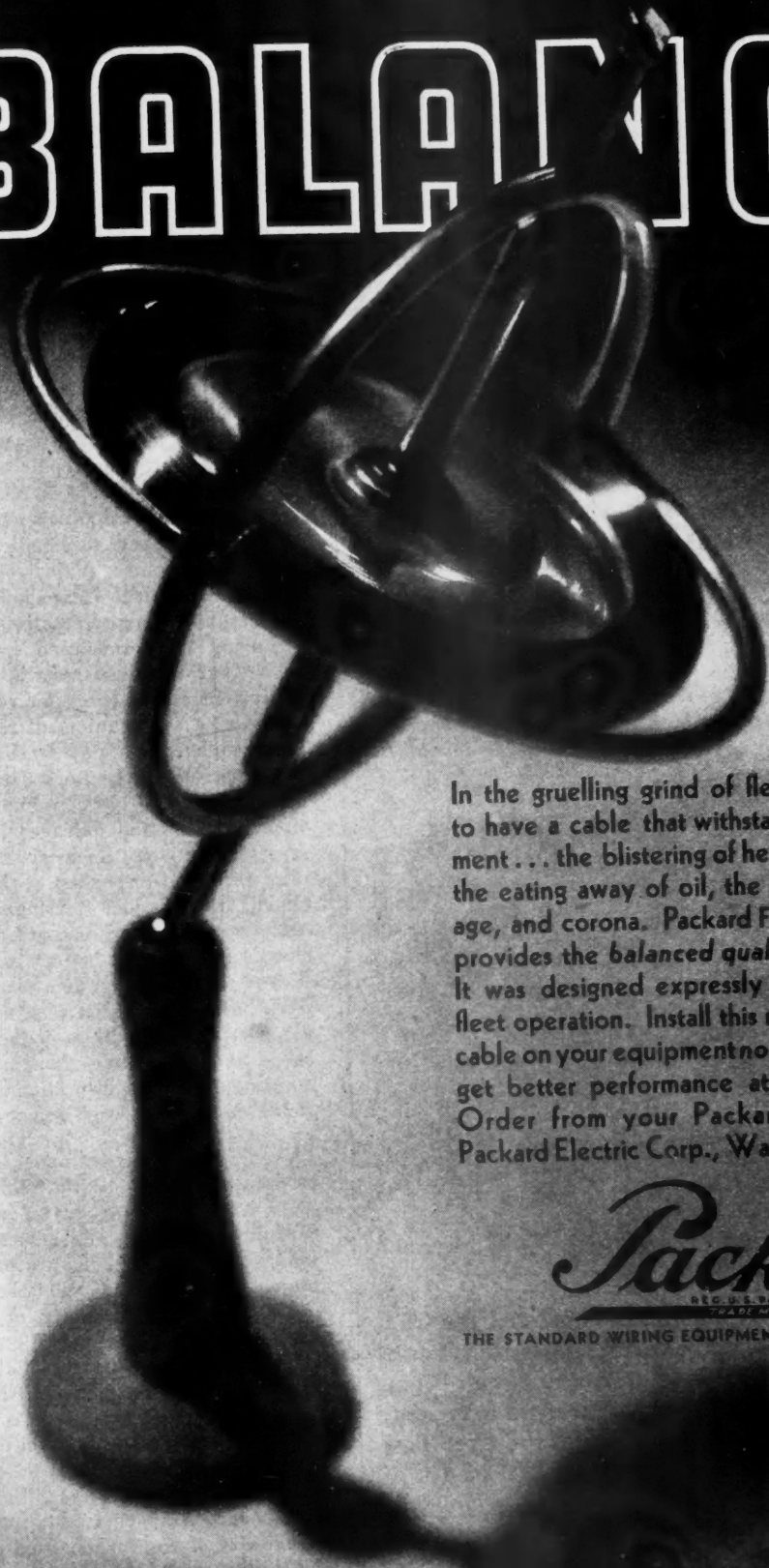
camps, grouping the equipment by makes and models to facilitate maintenance and stock control. Traveling shop mechanics operating out of central shops, instruct drivers in the care of the equipment and inspect and service the trucks. The traveling mechanic's job is to make minor repairs, keep the central shop informed as to the type of work on which the equipment is being used and advise when equipment needs a major overhaul. He is aided in his work at CCC camps by enrollees receiving service instructions. Conventional inspection forms are used for these reports.

OPERATION of the central shop makes it possible to keep an account of all equipment in a region on a card index system and permits the equipment engineer to know where every piece of equipment is located and what work it is doing. A check is also easily made on what repair work is being done on various equipment, cost of parts and labor; and weaknesses that may develop in any one type or class of equipment are early detected and corrective measures taken. Regional office inspectors, as part of their jobs, inspect the work of the traveling mechanics. Inspections are made in such detail that traveling mechanics can be checked as to their ability in keeping their trucks in repair. At such inspections, the regional inspector decides whether or not a truck should be sent to the central shop for major repairs.

Central shops are equipped to carry on the maintenance work for approximately 40 to 60 camps, and handle the major overhaul work of 400 units. Equipment includes welding tools, battery equipment, brake relining machines, boring bars and cylinder hones, boring bar, main bearing, a range of electric drills, forge with air fittings, power trip hammer, connecting rod and piston aligning jib, lathes, planer, piston ring grinder, wood working tools, paint shop equipment, etc. Total value of existing and recommended equipment is placed at \$9,470 for central repair shops with rolling equipment.

(TURN TO PAGE 64, PLEASE)

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In the gruelling grind of fleet operation, you've got to have a cable that withstands every kind of punishment... the blistering of heat, the ravages of abrasion, the eating away of oil, the cracking caused by cold, age, and corona. Packard FOUR-FORTY ignition cable provides the *balanced* quality that resists all of these. It was designed expressly for the toughest kind of fleet operation. Install this newer, finer, longer-lasting cable on your equipment now! Begin to get better performance at less cost. Order from your Packard jobber. Packard Electric Corp., Warren, Ohio.



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THE STANDARD WIRING EQUIPMENT OF THE AUTOMOTIVE INDUSTRY

(CONTINUED FROM PAGE 62)

The rolling shop operating out of the central shop is in charge of the driver-mechanic who cares for the upkeep and minor repairs of field equipment. This mechanic has two to four camps, 45 to 50 machines, depending on the amount of work, the amount and kind of equipment and proximity of camps. Usually a tractor mechanic travels with the truck mechanic. Field mechanics make out weekly reports showing the camps visited, the work done, etc. Servicing of truck equipment is done in camp garages by CCC enrollees.

Rolling shops carry a complete set

of shop tools, including reamers, drills, etc., and a small list of extra parts sufficient to make minor repairs. Only where there are isolated camps will traveling mechanics attempt major repairs.

THE second set-up of central field shops is essentially the same as the first set-up except that in regions where the number of camps warrant it, there are two or more such shops located in strategic areas where 20 to 30 camps may be handled. In some cases the secondary shops will not handle major repairs but transfer such work to the

central shop where this work is done.

Rolling shops also operate out of central field shops and are expected to normally keep 60 per cent of the repair work away from central shops. The mechanic checks the servicing of equipment in the camps assigned to him.

THE third maintenance set-up of camp shops handle all minor repair work with major work contracted out to local repair shops. This is in localities where the few existing camps do not justify the cost of the central shop set-up. Mechanics at camp shops have the additional duty of training enrollees in automotive maintenance. His equipment is no more than what may be necessary for minor repair work. Frequently rolling shops handle major repairs in the field which camp shops are not equipped to handle. Under other circumstances major repair work is contracted out to local shops or local manufacturers' representatives.

Among the forms used for inspections and keeping records are the equipment record cards for each truck in the area; the equipment report giving complete data day by day for a 30-day period of the work done by the truck, its oil and gas consumption, servicing, repairs and mileage; the truck inspection report which gives a complete record of inspection of the motor, clutch, transmission, steering, ignition, cooling system, brakes, springs, body, chassis frame, tires, battery and accessories; the job card which shows what work has been done on each unit; and a report made out by both the central shops and the rolling shop mechanics covering the daily inspection and servicing of trucks in each region.

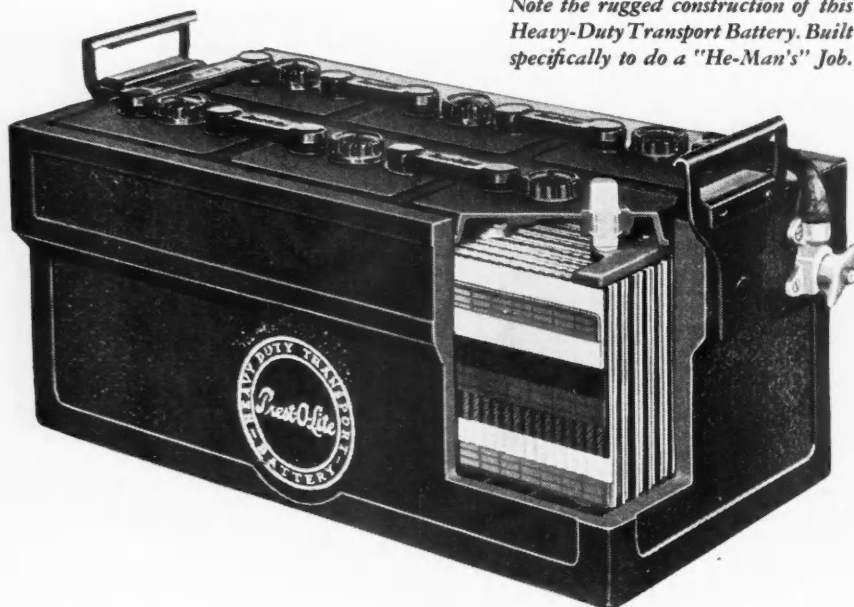
REPAIR costs are tabulated from job cards so that the upkeep of each unit is known. Job cards received from the traveling mechanics and central shops for each repair job done are priced in the regional office. As soon as the job is started, a pasteboard copy of the job card is set up. The time of each man is entered on this card. All the supplies or parts used are entered and a description of the work done is shown. Parts are priced at cost. Ten per cent of the total of labor and parts is added for overhead and use of shop and tools. Such a card is kept for each truck and a summary of costs taken from the job cards is recorded for each fiscal year on the investment record which shows the hours of use and cost of upkeep for each unit.

Some idea as to the type of equipment used, its estimated life, average cost, and cost per mile of operation figured on the basis of depreciation, operation (including gas, oil, greasing, etc.) and repairs, storage, etc., may be

(TURN TO PAGE 66, PLEASE)

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to hold the preference of the world's motorists, as well as most automotive engineers.

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Watson Bros., Transfer Company, Omaha, Nebraska, who operate over 150 trucks, use Champion Spark Plugs exclusively for their greater economy and dependability.



Motor Transit Company, Jacksonville, Florida, operate 69 buses in this city. These buses travel over 4 million miles yearly and are 100% Champion-equipped.



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COMMERCIAL CAR JOURNAL
OCTOBER, 1936

(CONTINUED FROM PAGE 64)
obtained from a study of the truck cost table on this page.

No set number of replacement units are acquired by the CCC yearly. However, plans for this year called for the purchase of 3482 trucks, tractors, and other automotive equipment. This number of purchases include 2413 trucks, 51 automobiles, 532 heavy automotive units such as tractors, tractor-trail-builders, graders and 486 heavy units such as mixers, compressors, rock table on this page.

The story of the CCC would only be

half told unless we reviewed, even if only briefly, who the CCC enrollees are, what work they are doing, their accomplishments, and observe some of the interesting facts of CCC camp set-up and camp life.

Of the 2175 CCC camps, 1082 are in the Forest Service and the remainder function under the Biological Survey, Mosquito Control, about 500 each under Soil Conservation Service and National and State Parks and a few are at army posts doing work on soil conservation under army control. These camps have from 150 to 175 enrollees,

CCC TRUCK COSTS

Truck Size	Estimated Life	Average Cost	Rate per Mile		
			Repairs Storage & Misc.	Operation Gas, Oil, etc.	Depreciation
1/2 ton	45,000 mi.	\$ 450	\$.015	\$.02	\$.01
1 1/2 ton Stake (light-Ford Chev. Class)	45,000 mi.	670	.02	.03	.015
1 1/2-2 ton Stake (heavier class)	50,000 mi.	750	.025	.04	.015
1 1/2-2 ton Dump (Ford-Chev.- Reo, etc.)	30,000 mi.	800	.03	.04	.025
2 1/2 ton	50,000 mi.	1,500	.04	.05	.03
3 1/2 ton	50,000 mi.	2,000	.07	.05	.04
5 ton	50,000 mi.	2,500	.08	.06	.05

Above do not include 6 wheelers or 4-wheel drive.

but can accommodate 200 each and have today about 350,000 enrollees. All told 1,600,000 enrollees have passed through the gates of the CCC camps since their inception.

The number of camps in each state depends on the state's population. New York has 112 camps, Pennsylvania has 108 camps and California has 104 camps. Montana has 19 camps with perhaps four times as much forest land.

Enrollees are single men between the ages of 18 and 25 recruited from all walks of life. Some are college and professionally trained men. The extent of their schooling, however, averages eighth grade.

To date 25,000 enrollees have been taught to read and write and thousands of others have been given vocational training in truck driving, automotive maintenance, building, masonry, painting, forestry, soil conservation, carpentry, etc.

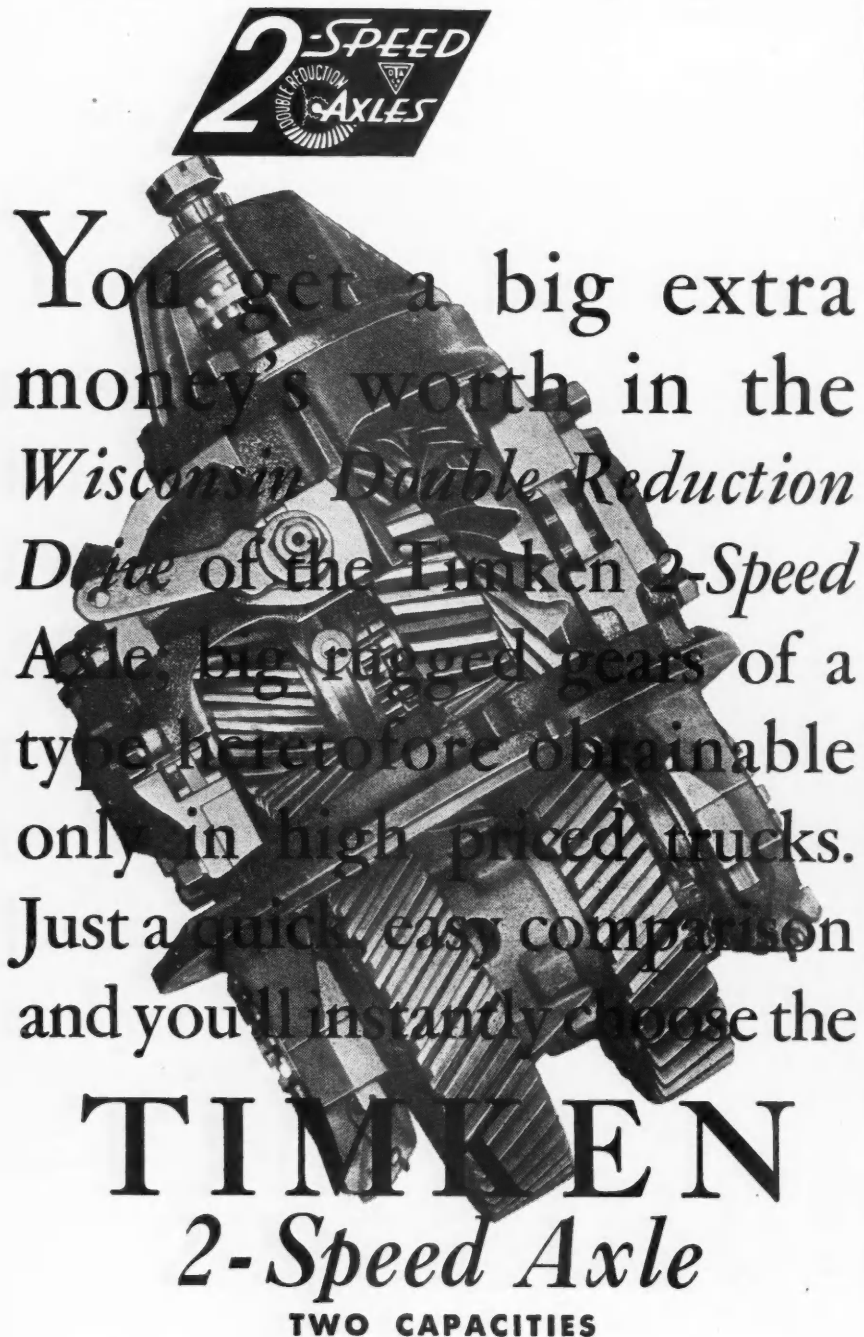
Term of enrollment is six months with the option of remaining an additional six months. The average stay for all enrollees is 8 1/2 months. These men receive \$30 monthly of which \$5 is paid to them and the other \$25 goes to their families or dependents or else is held until they leave. An enrollee who shows himself to be capable and reliable is promoted to squad boss with 25 men under him and his pay is boosted to \$36 monthly.

CCC enrollees are also given a vacation. They receive 1 1/4 days' leave a month working a five-day, 40-hour week in the Forest Service.

Recreation at each camp is under the supervision of the educational adviser and includes baseball, boxing, swimming, inter-camp competitions. Every camp also boasts a library.

FOOD and clothes for CCC enrollees are supplied by the army for the simple reason that such provisions are readily available through the army. Army men take charge of enrollees after working hours and direct their activities but at

COMMERCIAL CAR JOURNAL
OCTOBER, 1936



You get a big extra money's worth in the Wisconsin Double Reduction Drive of the Timken 2-Speed Axle, big rugged gears of a type heretofore obtainable only in high priced trucks. Just a quick, easy comparison and you'll instantly choose the

TIMKEN

2-Speed Axle

TWO CAPACITIES

THE TIMKEN-DETROIT AXLE COMPANY, Detroit, Michigan
WISCONSIN AXLE DIVISION, Oshkosh, Wisconsin

no time is there any military training. Men in the Forest and other Work Services have charge of the enrollees from 7 a. m., to 4 p. m., or for the regular working period.

What is the camp set-up? Each camp has a commanding officer from the army who is responsible for clothing, housing and general welfare. The project superintendent has charge of the work done. Under the project superintendent there are assistants and instructors, composing the general staff. There are four to 10 foremen in each camp, who, as in the case of the Forest Service camps, are experienced local men chosen for their ability in the particular work being done.

A well ordered life is one of the results achieved by CCC discipline, such as it is. Enrollees wash their own laundry, make their beds and generally keep their own house in order. Food is plentiful and wholesome. Breakfast consists of fruit, bacon and eggs, bread and coffee. Dinners are frequently augmented with chicken or duck for the main plates. An army mess man has charge of the food. He does his own buying locally and the grade and quantity of food frequently depends on the mess man's capacity as a shopper. When he does buy, a purchase may be a mere 20 sacks of potatoes and a dozen cases of canned goods plus trimmings and what-not. The cost of feeding each CCC enrollee has ranged to date between 40 and 45 cents per day, depending on the cost of food.

What have CCC men accomplished?

Up until April, 1936, enrollees had established 45,208 miles of telephone lines, 1799 look-out towers, built 2,000,000 check dams, improved 3,000,000 acres of land in soil conservation work, built 67,941 miles of truck trails through forests, 49,000 miles of fire breaks, improved 2,386,000 acres of timber, planted 649,000 acres of forests, cleared 1,464,456 acres of fire hazards, have cleaned up 51,079 miles of roadside, protected 7,760,000 acres of land against insects and have spent 2,521,604 man days fighting forest fires. Although this is not a complete list of their work, it is enough to give some idea of what has been done—besides the training of truck drivers and mechanics and the operation of a 24,000 truck fleet. No small job!

Private Life of a Brake Drum

(CONTINUED FROM PAGE 21)

lining clear of the drum. The lining at the heel and toe will be practically worn out before the largest portion of the lining ever comes into contact with the drum. If the undersized shoe is

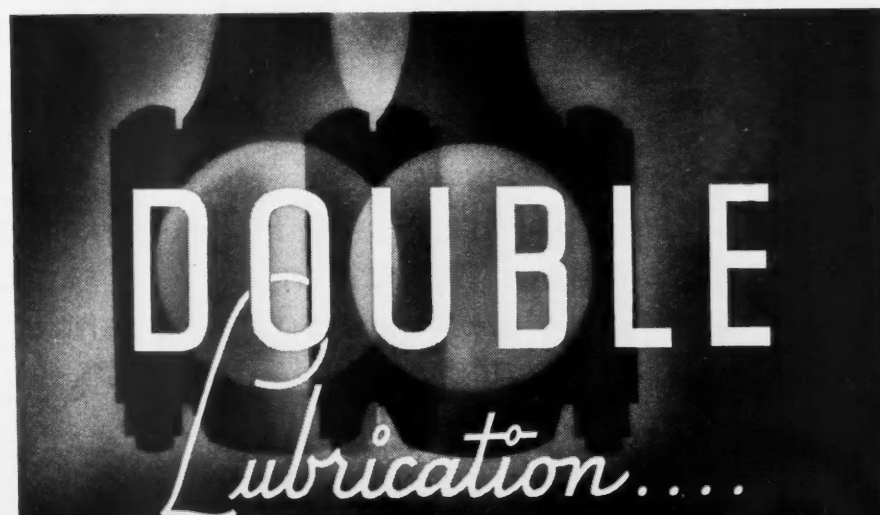
adjusted to proper heel clearance the contact surface is only the heel of the shoe. See Fig. 6. Naturally if the shoe is undersized and the heel is adjusted to proper clearance the toe must be a considerable distance away from the drum.

From Fig. 7 it is possible to get a perspective of the condition when lining is installed on the shoe loosely. The performance of this brake will be erratic and the lining will be short lived. A brake lining stretcher will prevent installations of this kind.

Fig. 8 shows a properly relined set

of shoes that are in perfect adjustment. Naturally this necessitates grinding the shoes so that the lining is concentric with the surface of the drum.

Incidentally the ability of the brakes to slide the wheels on the ground by locking them is not a true measure of brake efficiency because the greater rate of deceleration comes before the locking point. After the wheels are locked the rate of deceleration depends entirely upon the coefficient of friction between tires that might be smooth and the road which may be wet and oily.



DOUBLE

Lubrication....

FOR PROTECTION DURING "SHOCK CONDITIONS"

With the use of "dag" colloidal graphite, as contained in many branded products, an added protection is provided for automobile "shock points".


Colloidal graphite, lubricating while withstanding high temperatures and heavy pressures, is ever present during those momentary periods when oil film rupture occurs.

The graphoid surface formed on the friction parts serves as a perfect background for lubrication. It is a double safeguard against wear producing metal-to-metal contact caused by sudden "shock conditions".

We will gladly forward a copy of free descriptive folder upon request.

Ask your oil supplier about his colloidal-graphited brands today

ACHESON COLLOIDS CORPORATION • PORT HURON, MICHIGAN



COLLOIDAL GRAPHITE

ACHESON COLLOIDS CORPORATION
Port Huron, Michigan

Please send gratis, story on "dag" colloidal graphite.

Name

Address

City

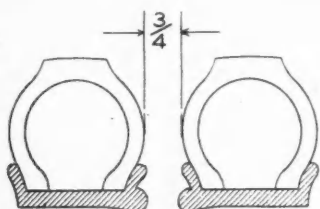


for Dual Wheels

POSITIVE TRACTION

end tire chain troubles ..many times longer life

Here's the first real improvement in non-skidding devices since the advent of the tire chain . . . a very definite improvement in effectiveness under all road conditions, in convenience for quick use, in longer service.



Each chain is long enough to fit largest tires in each group. Break off surplus chain when used on smaller diameter wheels.

NON
SKID BAR
PATENT PENDING

An Improvement
on Skid Chains



Bars are independent of chains. Illustration shows construction of Bar, Chain and Hook.

Easily and quickly put on without jacking up truck or bus . . . even when wheels are mired to the axle in mud, sand or snow. No tools required. No side wall chains to cause resistance in mud or snow, or to interfere with fenders, brake mechanism or springs.

The single chain fits between the dual tires, holding the non-skid bars firmly to the face of the tires and doing away with chain rattling. The non-skid bars are independent of center chain . . . lace on as many bars per wheel as desired. 50% less motive power required than with other non-skid devices to pull through bad road conditions. Perfect riding quality and less noise on bare pavement. No injury to tread or side walls.

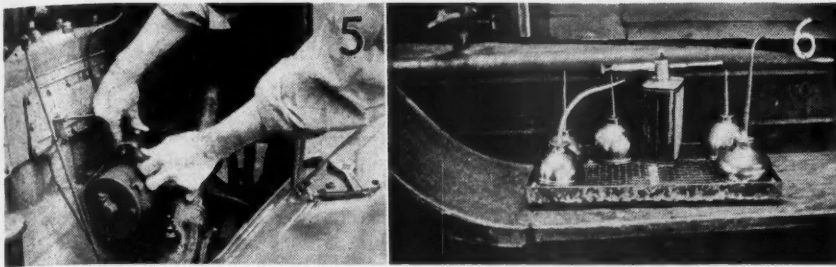
The non-skid bars are made of drop forgings, heat treated and case hardened. They have proved to withstand hundreds of miles driving on bare pavements. The chains are heavy steel, case hardened. A complete set weighs less and gives many times longer service than other heavy duty non-skid devices for dual wheels. Two sizes fit 90% of all standard dual wheel trucks and buses.

You'll be surprised at the low cost of this new and better protection against skidding and delays on bad roads. Write for information.

Manufactured and For Sale by . . .
TROPIC-AIRE INCORPORATED
91 11TH AVE., N. E. MINNEAPOLIS, MINN.

Formerly the Wannemacher Skid Bar as manufactured by Wannemacher Mfg. Co.

COMMERCIAL CAR JOURNAL
OCTOBER, 1936



Illustrations are of (5) Determining Starter Trouble and (6) Oil Can Stand

Shop Hints From Fleets

(CONTINUED FROM PAGE 22)

fuel tank if a gravity feed or between the carburetor and the vacuum tank if a vacuum feed. The idea cannot be used on cars or trucks using mechanical or electrical fuel pumps. The standpipe can be connected with a regular Tee coupling and the smallest size of copper tubing available is large enough for the job. The drawing illustrates the methods of installing.

By **BILLIE BURGAN**

Hage's Ice Cream Co., San Diego, Cal.

Brake Jack for Wash Rack

MOST everyone has been having trouble with a loss of brake efficiency for a period after the truck has come off the wash rack. We found a way to overcome this trouble. Merely set a brake jack which costs very little and takes less than a minute to set so that the brakes are in the full on position. The brake lining being tight against the drum is unable to absorb any water consequently it is not affected by the water that may enter the brake drum and with the shoes in the "on" position very little water will enter the drum.

Determining Starter Trouble

THIS was a test to determine whether failure has occurred in the starting motor or in the starting switch.

With the battery cable free press the starter button and touch the connection stud with the cable terminal. If a full arc hits the stud, release the button and touch it again. If the juice hits the stud on the second touch it is the switch that has failed. The starter should spin on the first touch, otherwise it is the same as a hitchhiker—just so much dead weight.

Oil Can Stand

IT is possible to keep the small oil can mess from spreading by setting the cans in a metal tray. The bottom of the cans can be kept clean so that they will not leave their mark every time they are set down elevating them to a false bottom of hardware cloth supported by a frame of galvanized strips with bent ends for feet. The

frame can be soldered to the hardware cloth and the frame made to fit inside the regular metal tray.

Brake and Clutch Pedals

WITH the introduction of brake and clutch pedal extensions for 1933-1936 Ford cars and trucks, The L. F. Kreger Mfg. Co., 550 West 35th Street, Chicago, adds another product to the extensive Kreger line of replacement parts. These extensions quickly screw on the regular clutch and brake pedals. They are adjustable to any required length and are especially practical for short-legged Ford drivers or those who prefer to keep the movable front seat in the back position away from the steering wheel.

Kreger Brake and Clutch Pedal Extensions are listed as No. 204 and are sold in pairs.



"STOPPED BY MIDLAND" a Slogan Adopted by the Largest Fleet Operators

Proof of performance is the only basis on which to choose your power brake equipment.

MIDLAND Power Brakes are used and endorsed by the largest fleet operators because they have proved their merit on the job.

Made under exclusive Midland-Christensen patents by one of the world's largest parts manufacturers, Midland Power Brakes are economical to install and require almost no servicing. Highly efficient because of their light weight, simple design and sturdy construction.

Follow the example of leading fleet operators. Equip your present trucks with Midland Power Brakes and be sure to specify them on all new equipment. For prompt information or quotations, consult your nearest Midland Distributor or write us direct.

Complete line of Power Brakes—both air and vacuum—including kits for Ford, Chevrolet, Dodge, GMC and International.

MIDLAND STEEL PRODUCTS CO.

10605 Madison Ave.

Cleveland, Ohio

★ *Never cost more and generally less than other power brake equipment.*

★ *Conform to all state laws.*

★ *Serviced by a nationwide organization of Midland Distributors.*

★ *Perfectly controlled stops with "Brake Feel."*

★ *Interchangeable in fleet operation.*

★ *Adapted to all types of vehicles.*

DISTRIBUTORS WANTED:

Write us about our distributor franchise. Your territory may be available.

MIDLAND *Power Brakes*
(Christensen)

Disk Brake Service Data

(CONTINUED FROM PAGE 23)

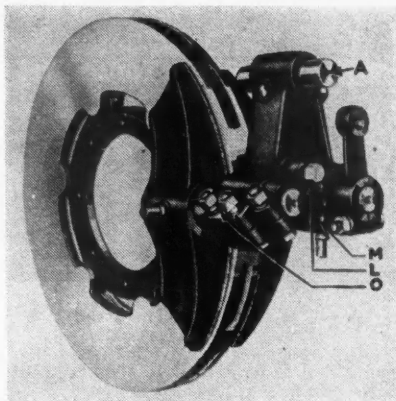
are as itemized in the following steps:

1. Place the brake lever in released position to get full clearance between lining and disk.

2. Check the lining to disk clearance and if it is more than $\frac{1}{8}$ in. adjustment is indicated.

3. Loosen clamp bolts O which hold the adjusting crank and remove lock bolt L in the adjusting lever M.

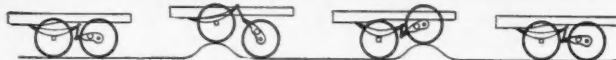
4. Move adjusting lever M one hole. Adjustment is correct if shoes will rock against the disk.



Illustrating the old style Tru-Stop brake discussed as Fig. 3 in the story

TRUXMORE

WORLD'S BEST 3RD AXLE



REDUCE RUNNING TIME

(Another Truxmore Saving)

Users say Truxmore jobs haul the same loads as tractor semi-trailer combinations, and *get there hours quicker.*

Truxmore controls sidesway, rides the load with pleasure-car smoothness (because of Gravity Springs), and safely maintains speeds where other trucks must slow down to avoid danger.

Truxmore permits faster schedules,
reduces driver time on the road,
helps you obey working time limits for drivers.

New York
Syracuse, N. Y.
Binghamton, N. Y.
Rochester, N. Y.
Erie, Pa.



Chicago, Ill.
Philadelphia, Pa.
Pittsburgh, Pa.
Boston, Mass.

5. Replace lock bolt L to lock adjustment and tighten clamp bolts.

6. Do not shorten brake pull rod or cable.

If the size of the brake is in correct relation to the gross weight as outlined in the table previously given and the lining and adjustment of the brake is correct, the emergency brake is capable of locking the wheels.

NEWS

(CONTINUED FROM PAGE 42)

Last ATA Convention Call

Plans have been completed and the doors are ready to open on the third annual convention of the American Trucking Association, Inc., at the Stevens Hotel, Chicago, October 19, 20, 21.

Contract Filing Deadline Dec. 1

Contract carriers have been given two more months in which to file copies of their contracts with the ICC. In a recent order the Commission moved up the filing deadline from October 1 to December 1. The Commission also stated that it may not be necessary to have the filing order apply to certain classes or groups of carriers.

Truck Displays at Chicago Show

Setting a new record for both numbers of exhibitors and amount of space taken, 11 truck manufacturers drew space to show their 1937 models at the Chicago automobile show, opening November 14. Manufacturers who will show their lines are: Chevrolet, Ford, Dodge, White, Diamond T, Reo, Studebaker, Federal, Terraplane, Plymouth and Willys. Sixteen makers of trailers have made reservations.

IHC Opens Salesroom

The International Harvester Co., has opened a new salesroom and service station located on the corner of Logan Boulevard and Elston Avenue in Chicago.

FWD Appoints Two

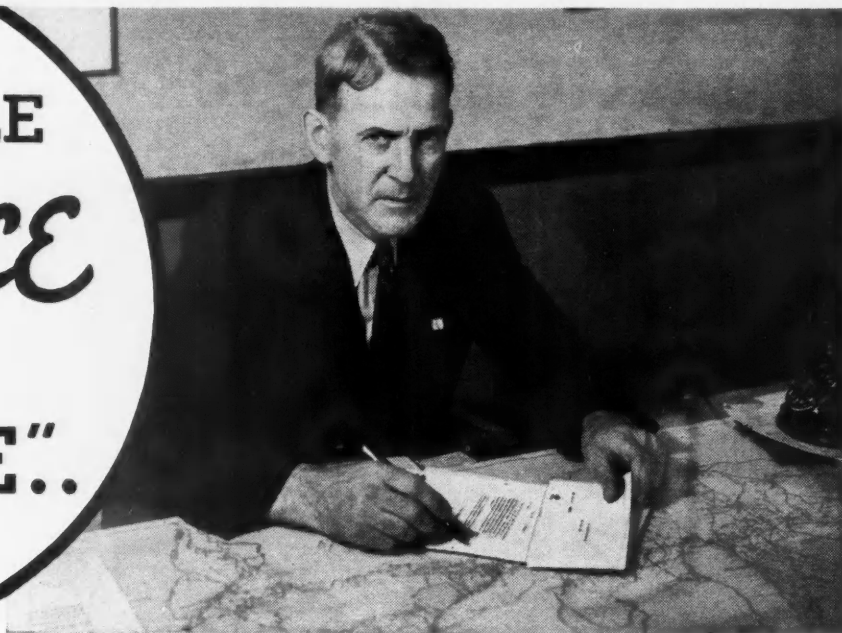
H. M. Daniels has been elected second vice-president of the Four Wheel Drive Co., Clintonville, Wis. He is Eastern sales division manager for the company.

E. E. Giessel has been appointed manager of the parts, shipping and service department of the company.

Newark Show Itching to Go

Plans have been completed for the third annual Newark, N. J., truck show to be held in that city November 3 to 7, in Newark Center Market Building. The week has been designated as motor truck transportation week. A three-day regional transportation meeting of the SAE will be held in conjunction with the show.

DEPENDABLE Service "OR ELSE.."



E. J. Fraser, responsible for maintenance of the Keeshin fleet.

E. J. Fraser, Superintendent of Maintenance at Chicago for the \$2,000,000 Keeshin Transcontinental Freight Lines, talks facts about the part that AC Spark Plugs play in a 98 per cent perfect record of maintaining "on time" deliveries.

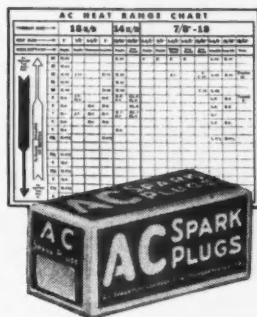
KEEPING 1,397 tractor and trailer units moving over the highways of eighteen states, six nights in every week—with a 98 per cent perfect score for delivery as promised—is a job that allows only the narrowest margin for schedule interruptions from equipment failure on the road. Yet, that's exactly the job being done by the maintenance department of Keeshin Transcontinental Freight Lines, Inc., and it's the thing that keeps Keeshin customers sold on Keeshin "Dependable Service"—the one big thing that holds customers.

No Keeshin tractor and trailer unit is permitted to start a run until it has been checked and checked again by a swarm of keen-eyed inspectors, and their report signed by the driver.

So, it is no wonder that each week-day morning sees Keeshin units rolling into their destinations "on time."

Back of this remarkable performance is, of course, a maintenance operation

that functions like a watch. In the Chicago area, maintenance is managed by E. J. Fraser, spare, grizzled, amazingly capable veteran of the trucking and service business.



The AC Heat Range Chart guides Keeshin men in selecting the correct AC Spark Plug to fit individual engine operating conditions. The AC Cleaning Machine keeps plugs at peak efficiency.



It is up to Mr. Fraser to see that no maintenance weakness reduces the Keeshin Motor Express score of 98 per cent. In guarding that record, he dips into everything which affects vehicle maintenance—including the make, type, and heat range qualities of the spark plugs used, and the method of keeping them at peak efficiency.

Here is what Mr. Fraser says about plugs and truck schedules:

AC Spark Plug Co., August 27, 1936
Gentlemen:

It affords me a great deal of pleasure to write you, with reference to the performance of AC Spark Plugs in our fleet. Through the use of the AC heat range chart, we have selected the proper type of AC Spark Plugs to meet varying motor conditions. As a result, we have obtained excellent spark plug service, which materially assisted us in maintaining our operating schedules. Inasmuch as our business is based on dependable service, we will continue to use AC Spark Plugs, in view of their dependable performance.

Very truly yours,

KEESHIN MOTOR EXPRESS COMPANY

(Signed) Edwin J. Fraser

Sup't of Maintenance

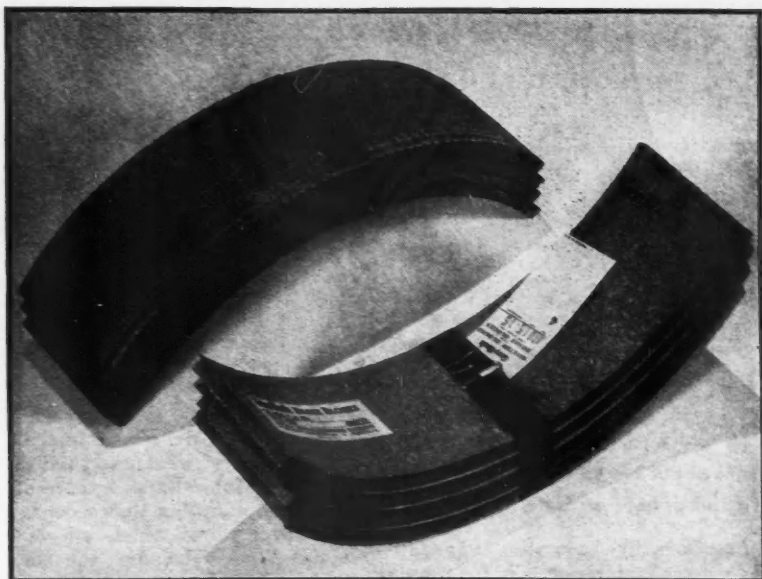


New Keeshin units reflect the aggressive spirit of the organization.

No one knows better than Mr. Fraser just how important it is to use plugs of reliable make, of the correct type, and of the proper heat range. No one knows better how important it is to maintain them properly—to keep them clean, and the gaps correctly set.

The evidence furnished by Mr. Fraser's letter is significant testimony to the fact that AC Long Life Spark Plugs—fitted to the operating conditions of each engine by utilizing the complete heat range in which these plugs are built, and kept clean and adjusted with the AC Cleaning Machine and Tools—go the limit in assuring complete spark plug satisfaction. AC SPARK PLUG COMPANY, Flint, Michigan, and St. Catharines, Ontario.

BALANCED BRAKES FOR YOUR WHOLE FLEET in Two Grey-Rock LININGS



and ONE Grey-Rock instruction BOOK



For the first time relining instructions for motor trucks have been made genuinely simple. For the first time you can tell exactly what lining to use on each wheel of truck or trailer, whether your vehicle is one-ton or ten, whether it has manual, booster, or air controlled brakes. For the first time you can service an entire fleet by stocking only two types of blocks.

This book was written, and these linings were marketed only after Grey-Rock engineers surveyed 250,000 vehicles in the field. Grey-Rock's recommendation plan has been proven superior by hundreds of large fleets. Get your copy of Grey-Rock's recommendation guide. Give it to your shop foreman. It will save money, repair time, and accident cost.

CAUTION: Before adding antifreeze, replace worn connections with Grey-Rock Radiator Hose, and get ready for Winter with Grey-Rock Power Plus Clutch Facings.



A free copy of this valuable guide is meant for you. Your Grey-Rock distributor has it. See him at once.



UNITED STATES ASBESTOS DIVISION of Raybestos-Manhattan, Inc., MANHEIM, PA.

BRAKE LININGS • CLUTCH FACINGS • FAN BELTS • HOSE • PACKINGS • RELINING EQUIPMENT

COMMERCIAL CAR JOURNAL
OCTOBER, 1936

MASTERCRAFT

TRUCK BODIES

For Safe and Fast Food Transportation



WE'RE USING MASTERCRAFTS
ON ALL OUR JOBS TOO!



LUCE MANUFACTURING CO.
LANSING, MICHIGAN

After Hours

(CONTINUED FROM PAGE 31)

"4. Regulation of man-power on trucks and length of vehicles and trailers.

"5. No driver to be under 21. No employee to be under 18.

"6. Elimination of all sleeper cabs; better conditions of rest for long distance drivers—away from the trucks."

Labor also took a firm stand against the stipulation that drivers be able to speak and read the English language. No amount of leading questions could persuade Organizer O'Brien to alter his opinion that literacy does not have a thing to do with safety. Labor, apparently, does not believe in signs. W. M. Graff, of the National Bureau of Casualty & Surety Underwriters, denounced the opinion.

Mr. Budd, of the Greyhound Lines, said he was in full accord with the principle that the Commission should prescribe general rules for the qualification of employees, their maximum hours of service and safety in operation.

"However," he said, "this can best be done by laying down standards which companies must obey, rather than attempting to supervise in detail the performance of duties by their employees. Requiring detail personnel

data to be filed and maintained goes far beyond the scope of reasonable regulation, and its only result will be to put motor carriers to a great expense to which no other carriers are put in compiling a mass of information which would be useless for all practical purposes even if compiled. The laws of most states now require drivers to be licensed after careful examination—to require them also to have Federal licenses would be wasteful duplication."

It will be apparent that this viewpoint gives support to labor's stand.

THE speed rule in the section dealing with driving of motor vehicles was opposed by operators. As the rule stands "any speed in excess of 45 m.p.h. shall be prima facie evidence that the speed is not reasonable or prudent."

The A.T.A. suggested a substitute rule providing that when "any motor vehicle cannot be stopped within an assured clear distance, it shall be deemed prima facie evidence of speed which is not reasonable or prudent."

Bus Operators Spofford and Budd felt that limits set locally should prevail. They both argued that speed is universally considered a local and momentary problem, one which should be governed entirely by conditions of road, weather and time. Mr. Budd declared the provision as written is "an

invitation to ambulance chasers and false claim racketeers."

The requirement that front marker lights be white or amber drew conflicting opinions. The A.T.A. favored green lights. T. D. Pratt, of the New York State Motor Truck Association, disagreed. Green, he reasoned, was a go ahead indicator, instead of a warning. Mr. Budd suggested that items of this nature be deferred until the individual states, in conjunction with the Commission, come to a better agreement on present differences.

THERE is no question that uniformity in the color of front marker lights is desirable. Therefore the deciding point should not be, and probably will not be, a particular color for color's sake but for its ability to be seen. A test by the U. S. Bureau of Standards should determine which color, other than red, meets this important requirement.

Other points were touched on in the hearing, but they were minor ones.

All in all, the testimony presented at the hearing was seriously lacking in facts and, unless the Commissioners permit themselves to be persuaded by some of the opinions expressed, the safety rules and regulations, as written, are not likely to undergo major changes.



THE TRAILER OF VALUE

Available in sizes to fit the needs of 9 out of 10 operators . . . Obtainable complete with standard bodies of matched design . . . Built by an organization with years of experience in the manufacture of commercial vehicles . . . Each unit a value that challenges the field on price and on the ability to work and earn. The choice of a constantly increasing number of operators throughout the country. Your nearest General Motors dealer will gladly tell you the whole story.

GENERAL MOTORS TRUCK COMPANY
PONTIAC, MICHIGAN

COMMERCIAL CAR JOURNAL
 OCTOBER, 1936

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Pasteurized Pulchritude

(CONTINUED FROM PAGE 29)

headlights, and it had a suggestion of utility and comfort in the driver's cab because of the wide windows with curved glass at the corners to eliminate the usual "blind spot" from corner posts.

When I got a broadside view of the passing truck I saw it truly was "a travelling billboard." The broad side space was unmarred by breaks for the side door, which was flush with the body and had no outside door handles.

The large oval shaded letters made the "Beloit Dairy Company" sign very conspicuous; and also the "Protected Milk" slogan under it. The added slogan, "Chicago's Largest Exclusively Wholesale Dairy" was also very conspicuous, even though the letters were small.

THEN came the novel "observation platform," at the rear, with bright metal latticed fencing across the end, and roomy enough for 10 or 12 large milk cans.

I have spent considerable time in checking my own first impressions of

the new Beloit truck with the impressions of other persons. The driver of one of these new trucks had this to say:

"It sure does attract attention. Many people turn to look, and even stop to watch me pass. Whenever I park on a busy street, a crowd soon gathers. Then a lot of questions about my truck. What did it cost—who made it—what make of tractor—is it harder to drive because it's so big? 'Why don't you travel on a track?' they joke. 'Because it looks so much like the front of one of the new stream-lined trains.'"

I happen also to know that the Beloit Company has received many "compliments" about their new trucks, many of them from business sources, including those who need and use wholesale dairy products.

"How did you happen to develop such attractive, individualized truck bodies?" I asked Dan McGuire, Secretary of the Beloit Dairy.

He is quite modest about it. But I soon learned that the planning of new truck bodies has long been a hobby of his father, Simms McGuire, president of the company. And the designing of these new bodies—both for advertising value and for utility purposes—has also been Dan McGuire's hobby during recent years.

THE first important truck body change made by the company was not prompted at all by advertising motives. This was in 1922, and the company was one of the first in Chicago to adopt the closed type of cab, purely from the viewpoint of comfort for their drivers.

The company was also among the first to adopt a truck body which included the cab as an integral part of it. Then, in 1930, they adopted drop-body features, the body slightly stream-lined through slope at the front of the top.

At this time all of their truck bodies had rear drop tailgates for carrying milk cans. But these tailgates were unsightly and troublesome. They were always getting marred or broken through minor accidents.

"The need of a new tailgate design stimulated me," said Dan McGuire, "to give a great deal of personal attention to this problem. In fact, it became one of my personal hobbies."

In cooperation with the General Body Co. of Chicago he designed a small model of what he wanted, including the new stream-lining principles for the reduction of wind resistance. And it included a new patented "observation platform" at the rear to carry 10 or 12 milk cans behind a neat latticed fence made of bright metal with a central rear loading gate. Thus



YOU CAN'T KICK GOALS WITH A SANDBAG

Old Siwash has just made a touch-down; a kicked goal will win the game. Fifty thousand people sit in hushed silence, with their eyes glued on the field.

Then, suddenly, fifty thousand groans fill the air. And no wonder! For the quarterback is going to try a kick... not with a football... but with a SANDBAG. He can't help but fail!

Kicking goals with sandbags is no different in principle than using trucks loaded down with dead weight. The one is as much of a handicap as the other. That's why

so many truck sidings are now made with Haskelite Plymetl.

The relative lightness and strength of Plymetl are not its only assets. It comes in shipable sizes, big enough for an entire truck side. No inside supports or braces are needed to give it rigidity and strength. And it can be washed as slick and clean as a store window or a dinner plate.

It will pay to insist upon Plymetl in your specifications. Extremely light, durable, extra strong—these are a few of the many superior qualities of Plymetl.



ONE OF A FLEET OF WALKER VEHICLE JOBS WITH PLYMETL BODIES, JUST COMPLETED FOR DUGAN BROS. OF NEW YORK AND NEW ENGLAND.

HASKELITE OFFICES
IN NEW YORK,
DETROIT, CHICAGO

HASKELITE MANUFACTURING CORPORATION

208 WEST WASHINGTON STREET, CHICAGO, ILLINOIS

the milk cans remain in view at the rear, still capitalizing a certain kind of sentimental advertising value for city milk deliveries. But the milk cans are more conveniently and safely carried than ever before. Also the sides and ends of the truck body are better protected than ever before, through a low metal-covered guard rail.

THE latest 1936 body design was stimulated in part by a personal visit in London about two years ago by Dan McGuire. He noticed that many of the drivers of cabs were sitting far to the front beside their cab engines.

Of course he had seen this same design at home in America in a model of a well-known truck. But he had never previously thought of this new cab-over-engine feature as related to his own business. By the time he had returned home, the working plans of the new design were well under way in his own mind. He had no especial thought of trying to be "original." The company merely wanted a truck body that would have advertising as well as utility value.

The newest company trucks are of the cab-over-engine type; with strip-metal fender front; "disappearing"

head lights; roomy cab space giving the driver easy access through a sliding door to a front compartment for goods for first deliveries, and curved glass at the corner to give better driver vision.

The top of the truck body is lightweight metal instead of the usual canvas covering, as better protection from dripping oil and falling objects, and as a better covering for the three-ply top insulation. Like side insulation supplemented by the close-fitting flush side doors, maintains temperature uniform enough so that ice is needed only during the few hottest months of the summer; and no heating is required even during the most severe winter months to prevent milk from freezing. The sealed aluminum interior finish makes possible easy cleaning with water and steam.

THE cab-over-engine type of body permits a surprising volume of loading space. For example, one of their older style bodies, 14 ft. in length on a rear single axle chassis with 190-in. wheelbase has a capacity of only three tons. But their newest type of cab-over-engine body, on a shorter wheel base of 172 in. with two rear axles, has a length of 17 ft. and a rated load capacity of 10 tons and will haul 15 tons. The new cab-over-engine body is favored by the company drivers. They sit higher and get a better view of the traffic. The shorter length gives better handling facilities. The compactness of the load and the better interior loading arrangements gives more protection to the supplies hauled. In the garage, the shorter length saves considerable storage space.

The side loading doors, which are flush when closed, have been especially designed so as to maintain a clear side space for the outside paint job. Even the usual outside door handles have been eliminated—and this is also an added discouragement to small boys looking for ways to hang on for hazardous stolen rides. The oval letters and coloring have been especially designed for advertising effectiveness.

To keep the "paint job" in good condition, it is planned that each truck shall be washed at least once or twice a week. A high pressure wash is used for the wheels, but for the painted surface only a sponge and chamois skin is permitted. The company is now in the process of doubling the size of its Chicago terminal building through new construction. When this improvement is completed they expect to give more rigid attention to washing and polishing truck bodies. Experience has proved that their truck bodies should be revarnished regularly every

(TURN TO PAGE 96, PLEASE)

COMMERCIAL CAR JOURNAL
OCTOBER, 1936



FUEL LINE

Breakage

ATTENTION SUPERINTENDENTS:

Stay off the boss' carpet
by putting fuel lines in
your buses whose service
you can guarantee.

Weatherhead
**FLEXIBLE
FUEL LINES**

bring your buses
back. Others will
too—*if* they don't
break on the road.

THE **WEATHERHEAD** COMPANY

632-714 Frankfort Ave., Cleveland, O.

To

KEEP BUSES

Going



THE VOTING *favors* TOLEDO



bus and truck valve sales *register* **BIG GAIN**

Toledo Super-Forged *Guaranteed* Valves are polling a heavy vote with alert fleet owners throughout the country. You too, are interested in improved performance, lower maintenance costs. It will pay you to test Toledo Valves. Try them in your fleet's toughest motor—and your vote will be added to the Toledo landslide. Ask your Toledo jobber.

THE TOLEDO STEEL PRODUCTS COMPANY, TOLEDO, OHIO, U. S. A.

New York, 17 W. 60th Street • Boston, 702 Beacon Street • Cleveland, 2209 Ashland Road • Chicago, 1225 South Wabash Avenue • Detroit, 5857 Forsythe • Atlanta, 279 Ivy Street, N. E. • Dallas, 2805 Commerce Street • Kansas City, 14th and Oak Streets • St. Louis, 3105 Locust Blvd. • Los Angeles, 1341 South Hope Street • Minneapolis, 21 South 13th Street • San Francisco, 528 Larkin Street • Portland, 408 N. W. 12th Avenue • In Canada: The Toledo Steel Products Company, Ltd., 14 Broadalbane Street, Toronto



★ GUARANTEE

Toledo "Type S" Super-Forged Valves are guaranteed. Your Jobber will give you, without charge of any kind, a new valve in exchange for any Toledo "Type S" Super Forged Valve which proves defective in service.

TOLEDO

COMMERCIAL CAR JOURNAL
OCTOBER, 1936

(CONTINUED FROM PAGE 94)
 six months. A paint job lasts 4 years.
 "Our company," said Simms McGuire, "has put much time and considerable cash expenditure into our new truck bodies. But we are certain that all of this time and expense has been more than justified, as measured by business returns."

These returns include:

1. Increased public goodwill.
2. Stimulated interest on the part of company customers and prospective customers, in a product considered worthy of such high-grade motor equipment.

3. Increased pride and loyalty by all company officials and employees, which is stimulating them to maintain high standards for company products.

What Are the Weakest Links In the Ignition System?

(CONTINUED FROM PAGE 28)

dubious distinction of being mentioned the most times as the weakest link with 20 votes. Next come breaker points with 19 mentions. If we may be permitted to interpret this vote, it seems quite reasonable that condens-

ers should actually receive some of the breaker point rap because it has been the experience of many fleet operators that much of the breaker point trouble is caused by faulty condensers.

NEXT come coils with seven mentions, then distributors and spark plugs with five each. One operator specifies that the 14 mm. plugs are the root of his plug trouble. Batteries, switches cables and generators are next with two mentions. Wiring, secondary wiring lighting system and battery terminals bring up the rear with one mention.

Without further qualification it is possible to say that fleet operators want better condensers and better breaker points.

Upon checking the fleet operators for maintenance practices we find that while procedure is divided many ways it is all of sufficiently high standard to indicate that these operators are not griping about flaws in design and construction when the fault lies in their own neglect. For instance we find that 22 operators clean and set the breaker points every 5000 miles, 11 operators clean and set every 3000 miles and four every 4000 miles. Following are two operators every 1000 miles and two every 2500 miles, one at 500 miles, one at 700 miles, one at 3500 miles, one at 7000 miles, one at 8000 miles, one at 9000 miles and one at 15,000 miles. One operator never cleans and sets the points at all. He replaces at 5000 miles.

FURTHER along the same lines we find that in 16 fleets the breaker points have to be replaced at 10,000 miles, in 10 fleets at 20,000 miles and in eight fleets at 15,000 miles. Five fleets replace at 25,000 miles, four at 50,000, four at 12,000 miles, three at 30,000, three at 5000 miles, two at 40,000 miles, one at 1000, one at 8000 miles, one at 7000 miles, one at 36,000 miles, one at 80,000 miles and one at 100,000 miles.

Obviously the average fleet is not getting enough service from breaker points despite the fact that they are well maintained in fleet service.

Spark plugs are treated royally by these fleets. They are cleaned and set periodically in every fleet consulted, with one exception. That fleet operator lets the plugs stay in the engine for 10,000 miles at which time he replaces them and asks no questions. Five thousand miles is the most popular interval for spark plug attention. Twenty-one fleet operators look at the plugs when this mileage is reached. Seven fleet operators do not wait so long and service plugs at 3000 miles

(TURN TO PAGE 98, PLEASE)

COMMERCIAL CAR JOURNAL
OCTOBER, 1936

40° below ZERO

did not retard their action

Says a big Fleet
Operator,
of—

★

Engineered



LATHAN

BESLER

POWER BRAKES



**DUAL
INSTALLATION**

ABOVE: LATHAN-BESLER
DUAL installation on the axle.
Quicker, easier installation. DI-
RECT brake action. No power
loss. Self-equalizing application.
Less wear on tires and brake lin-
ing. No skidding. No extra
bearings, shafts, or clevis
pins to install or maintain.

DON'T let "frozen" brakes slow up your winter hauling or increase your winter maintenance. Equip with LATHAN-BESLER Engineered Power Brakes. The same swift, smooth action ALWAYS, even during weeks of sub-zero weather with the brake mechanism packed in snow and ice. DUAL INSTALLATION on the axle makes application SELF-EQUALIZING, preventing skidding. And records of 175,000 miles per unit without maintenance or repairs, proves ECONOMY unmatched in all the field. Complete line. Nation-wide sales and service. Get the FULL facts and COMPARE. Write TODAY for LATHAN-BESLER Catalog.

LATHAN CO., Inc.

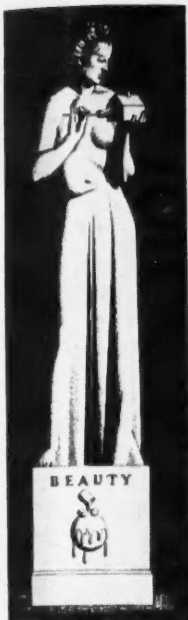
SAN FRANCISCO—Polk and Pine Sts.
DETROIT—477 Selden Ave.

**"LOCOMOTIVE
CONTROL"**

The ONLY completely modern power brake with a road-proved system of graduated, self-compensating trailer control as dependable and effective as that used on railroad trains.



PROVED IN YEARS OF USE BY THE NATION'S LARGEST OPERATORS



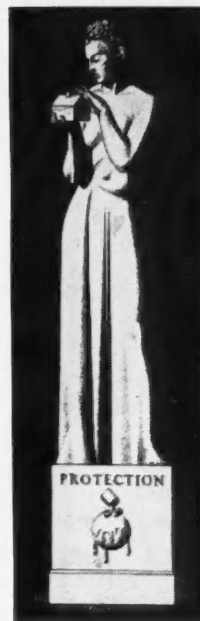
B E A U T Y

NEW PROFITS in every mile with KEM TRANSPORT ENAMEL

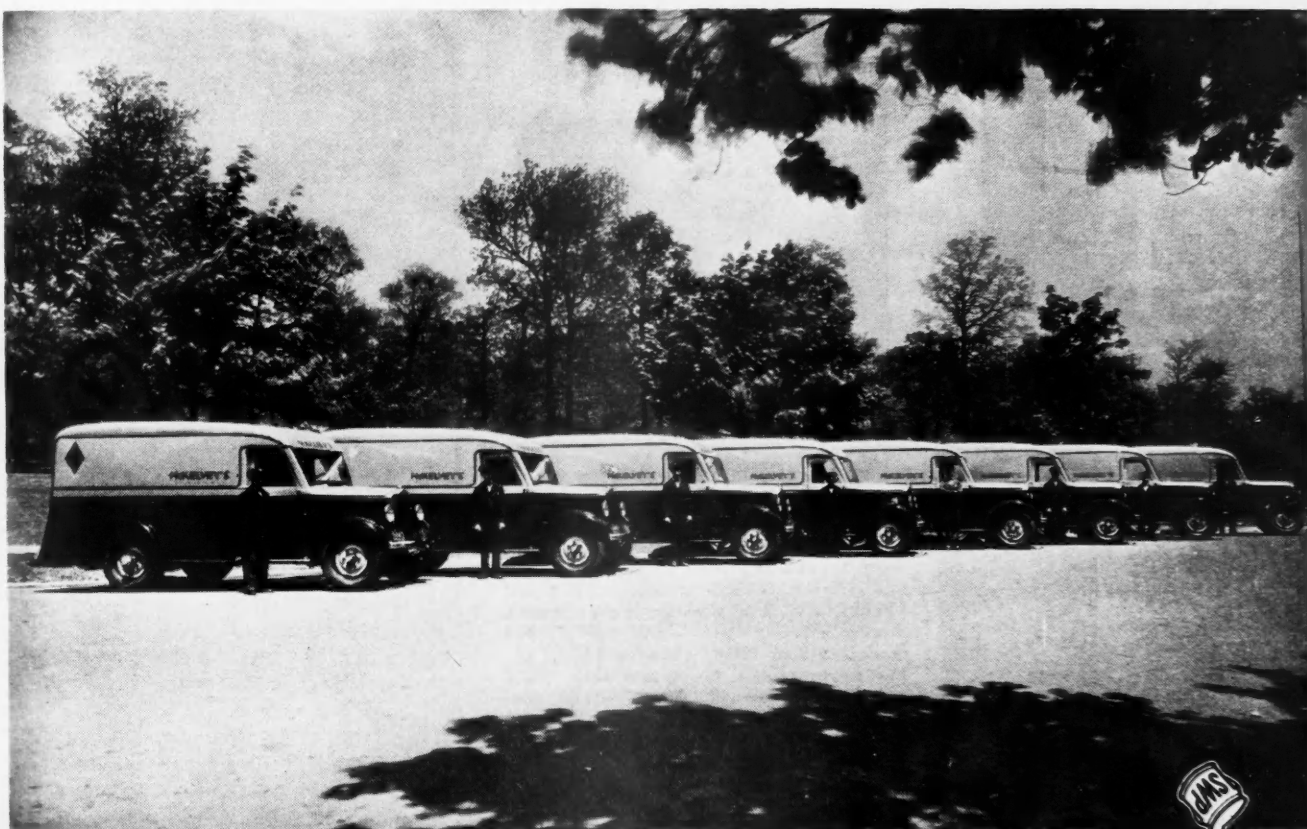
The cost of maintaining an attractive looking fleet decides if your mileage will be "profit mileage." McKelvey Department Store's fleet in Youngstown, Ohio, is getting new business as well as delivering old because this fleet is given a smart appearance and maximum advertising value with KEM TRANSPORT ENAMEL. Formulated to exacting fleet operators' specifications—to cut refinishing costs, keep equipment on the road, simplify finishing operations and give a superbly beautiful, lustrous and durable paint job—KEM is proving itself the answer to fleet operators' requirements everywhere.

KEM TRANSPORT ENAMEL combines sales productiveness with remarkable economy. It is easy handling, fast drying, and has exceptional build, a natural gloss and long life.

Why not call on our Engineers to show you what KEM can do to make yours a better paying fleet? Our Decorative Studios will also gladly work out a distinctive color scheme. No cost or obligation. Write The Sherwin-Williams Co., Dept. 670, Cleveland, Ohio.



P R O T E C T I O N



SHERWIN - WILLIAMS

A U T O M O T I V E F I N I S H E S



HEIN-WERNER SCORES AGAIN WITH THIS NEW

MODEL
2.95 A

2 TON LIGHT TRUCK Special

•
First In
The Field

•
Built Right
Priced
Right

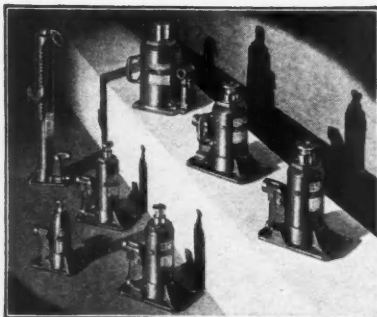
•
\$4¹⁵
NET TO
DEALER



• . . . Ideal for Chevrolet,
Ford and other light trucks

There is nothing on the market to compare with this sensational new model. . . . It meets the great existing need for a hydraulic jack designed especially for light trucks. . . . It, like all other Hein-Werner Hydraulic Jacks, is built right and priced right.

This new Model 2.95A is tested at 1½ times its rated capacity of 2 tons. . . . Has 7" lift to a total height of 16½". . . . List Price \$5.95. . . . Dealer Price \$4.15 (West Coast List \$6.45. . . . Dealer Price \$4.55).



A Complete Line . . .

Other models in this line include the "Bullet" Model, 1½ ton capacity at \$2.80 (West Coast \$3.10). . . . For light trucks, 3 ton models at \$7.95 (West Coast \$8.45). . . . 5 ton models \$9.95 (West Coast \$10.65). . . . For medium heavy trucks, motor coaches and shop use—7 ton models \$13.45 (West Coast \$14.50). . . . For heavy trucks, buses and shop use—12 ton models \$19.95 (West Coast \$21.00). . . . 20 ton models \$30.00 (West Coast \$31.00)—and for modern passenger cars, our new BUMPER-LIFT Model at a new low price of \$4.95 (West Coast \$5.65). . . . Above prices are net to dealer.

HEIN-WERNER MOTOR PARTS CORP.
Waukesha, Wisconsin

FEW MODELS ENGINEERED TO DO THE WORK OF MANY
HEIN-WERNER
hydraulic JACKS

(CONTINUED FROM PAGE 96)

while four fleets let the plugs alone for 10,000 miles. Next are three fleets who service at 8000 miles, three at 6000 miles and three at 4000 miles. Two fleets service at 1000 miles and the following periods have one devotee each: 15,000 miles, 2500 miles, 14,000 miles and 700 miles.

THE bulk of the fleets consulted renew spark plugs between 10,000 and 15,000 miles, an even 20 fleets returning the answer 10,000 miles, 12 changing at 15,000 miles and eight at 12,000 miles. Three more change during the period 10,000 miles to 15,000 miles and give this range rather than one figure. Three fleets get 8000 miles per set of plugs and two get 8000 to 20,000 miles. Two fleets change plugs at 20,000 miles and individual fleet change at each of the following mileages: 7000, 15,000, to 30,000, 12,000 to 15,000, 5000 to 10,000, 15,000 to 50,000, 10,000 to 20,000, 15,000 to 20,000, 16,000, 6000, 50,000 to 60,000, 50,000 and 5000 to 20,000.

Spark plug cable is relatively long lived. The popular figure for renewing spark plug cable is 50,000 miles and this is practice among 13 fleets. Next comes 20,000 miles with 10 fleets. 40,000 miles with six fleets, 30,000 miles with five fleets and 25,000 miles with five fleets. Ten thousand miles is the change figure for four fleets. 25,000 miles for three fleets and 100,000 miles for three fleets as well as 60,000 miles for three fleets. Two fleets change at 75,000 miles and single fleets at 5000 miles, 45,000 miles, 100,000 to 200,000 miles, 14,000 miles and 15,000 miles. Two renew only when trouble occurs and one once each year.

COILS do not seem to give much trouble. Ten fleet operators set the life of a coil at 50,000 miles. Six operators say the life of the truck, six say 20,000 miles and five give 25,000 miles. Below that from a popularity standpoint the figures range from 8000 miles to 200,000 miles with all figures having less than five votes and most of them getting one.

Batteries are well cared for in most fleets and as a result are able to report the following mileages as battery life under the varying conditions of different operations:

Nine fleets report 20,000 miles, seven fleets 50,000 miles, seven fleets 25,000 miles, six fleets 40,000 miles and six fleets 30,000 miles. Single fleets reported on mileages as low as 14,000 miles and as high as 108,000 miles. Three operators set battery life at 18

(TURN TO PAGE 100, PLEASE)

PUROLATOR ENGINEERS



**"N-7" AND ITS REPLACE-
ABLE FILTER ELEMENT.**

... present the perfected "N" type Purolator as the result of almost three years of research and development.

We positively assert that no other filter offers the same economy to the operation of trucks and buses, and we ask a comparison of the length of time that a lubricant retains its clean, yellow color...a definite indication that the filter is doing its job.

There was a time when perfect lubrication was merely an ideal. The "N" type Purolator filter dispels any such theory...and brings into being a lubricating system that functions perfectly, just as long as the element is replaced when the oil begins to show signs of discoloration.

That operation is quick...and inexpensive. We ask the maintenance departments of the big commercial fleets to check these assertions.

The "N" type filter maintains the original, clear, golden color of its oil much longer than any other filter...retains original lubricating qualities...lengthens the time between changes...neutralizes crankcase acids, and saves dollars and dollars on the length of time between renewals.

You will be surprised at the definite and provable maintenance savings inherent in the "N" type Purolator for buses and trucks. Let us have your inquiries. Motor Improvements, Incorporated, 365 Frelinghuysen Avenue, Newark, N. J., makers of

PUROLATOR

The Oil Filter



Our engineers were offended, but
... here it is

IDEAL FOR
FLEET SERVICE

MOST ACCURATE
TIRE GAUGE MADE

MAINTAINS
ACCURACY LONGER

6-Inch
Extension

Dual-foot
Reaches
Any Valve

Easy-to-
read
Swivel
Indicator

Extra-heavy
Chrome-plated
Body

WRITTEN
GUARANTEE

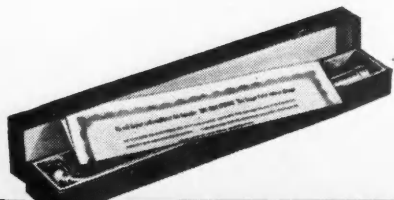
FREE
RECALIBRATION*

* Special Recalibration Service
a double assurance of continued
accuracy. The gauge should be
returned to Schrader for recalibration,
first at the end of six months of service
and again one year later. There will
be no charge for this special service.

THE definite effect that tire performance has upon the operating efficiency of motor fleets, makes it obvious that tire pressures cannot be too carefully maintained.

You can balance tire pressures to a much finer degree with this new Schrader Gauge.

For prompt delivery, place your order with your nearest supplier, now.



Schrader
REG. U. S. PAT. OFF.
No. 8106 TruTest Special
TIRE GAUGE

A. SCHRADER'S SON, Division of Swell Manufacturing Company, Incorporated, BROOKLYN, N. Y.

(CONTINUED FROM PAGE 98)

months, two at 2 years, two at 1 year and one the life of the guarantee.

Forty fleet operators charge their own batteries with their own equipment and 25 send the charging work out to a specialist. Almost all of the operators charge or have the battery charged when necessary. They do not in any numbers charge the battery on a periodic basis. The water level is checked every 1000 miles in 24 fleets, every 500 miles in 10 fleets, weekly in nine fleets and every 2000 miles in eight fleets. One fleet operator checks the water level only at 15,000-mile intervals and two fleets check every 300 miles. Some other fleets check at intermediate mileages.

CLEANING and lubricating battery terminals are done during the 1000-mile inspection in 13 fleets, at 3000 miles in eight fleets and at 2000 miles in six fleets and at 10,000 miles in six fleets. Other cleaning periods range from "on new battery installation" to 500 miles, none of the periods in this last mentioned range having more than two fleets following the practice. Battery terminals are renewed most frequently at 50,000 miles, 12 fleets doing it at that time. Seven fleets renew at 10,000 miles, six at 15,000 miles, five at 20,000 miles, four at 40,000 miles and four do not renew. Between these figures the rest of the fleets show a divided practice with one or two devotees for each interval given.

These figures are conclusive evidence that the job of ignition maintenance is one of keeping everlastingly at it and although the exact practice followed by the various fleets is not precisely the same, it is all fairly good practice.

Longer life of ignition units will have to come for the most part from more knowledge and better design and not from better care.

Wilkins Appointed by GM

R. J. Wilkins has been appointed general manager of the Southern California Division of General Motors Corp.

FREE!

New Hoof Governor Sales Manual, just off the press. 64 pages! Packed with facts, charts, graphs and statistics... all arranged in easy, quick, ready reference form. An invaluable guide for any person who buys, sells or specifies governors for truck, passenger car, bus, tractor and industrial engines. The manual is free. Send for your copy at once.

HOOF PRODUCTS CO.
162 No. Franklin St., Chicago, Ill.

ARMORPLY

• A metal faced plywood panel of high quality for building better panel bodies.

Armorply is the lightest panel of its type available. It is faced with rust resisting galvanneal steel, and has a hard birch back.

Write for samples, prices and full information.



U.S. PLYWOOD

UNITED STATES PLYWOOD CO.
103 Park Avenue New York, N. Y.

FWD Trucks

are available in sizes ranging in capacities from 1½ to 15 tons.

Write for bulletin

The Four Wheel Drive Auto Co.
Clintonville, Wis.
Kitchener, Ontario, Canada

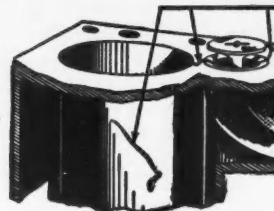
WAUKESHA

- Comet Diesel
- Hesselman
- Gasoline
- Hy-Powr
- Ricardo Head



ENGINES

CRACKED ENGINES CRY FOR WONDERWELD



A can of Wonderweld and 30 minutes is all it takes to repair cylinder cracks and valve port cracks. Your jobber will supply you.

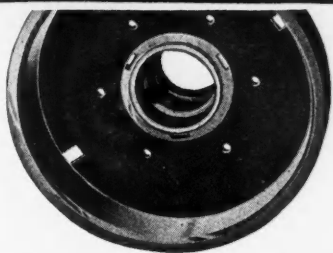
MILLER MFG. CO.

1218 KAIGHN AVENUE, CAMDEN, N. J.

COMMERCIAL CAR JOURNAL
OCTOBER, 1936

NEW BRAKE DRUM

Wears 4 to 20 Times Longer



"tool marks still visible after 6,000 stops at 50 miles per hour."

ONE of the world's largest manufacturers of brake linings—name given upon inquiry—makes this statement about the NEW, special alloy Cemcalloy Brake Drums: "These drums have established the best record of any we have tested up to now. After 6,000 stops at 50 miles per hour, equal to a load of 25,000 pounds at a deceleration of sixteen miles per hour per second, there were no scars or cracks. Tool marks were still visible, so there was no measurable wear." It will pay you to find out about these new, special alloy drums before winter's hard driving begins.

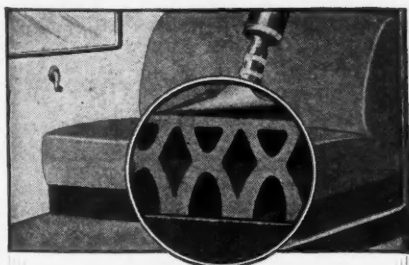
Write for details and prices, stating makes, models, and type of service.

CHRISTIANA MACHINE CO., Christiana, Pa.

CEMCALLOY

Heavy Duty BRAKE DRUMS

SEAT CUSHIONS



Many operators of large and small truck fleets are using Black-Diamond All-Rubber seat cushions and back rests because regardless of how varied or tough the tasks these cushions give everlasting service. They are built for heavy duty service, have extra strength and wearing qualities and their comfort prevents road fatigue to drivers. Cost sheets prove their economy. Get complete facts how these cushions can save you money on your trucks by writing

KARPEX MANUFACTURING CO.
1924 E. 19th St., Indianapolis, Ind.

New Products on Parade

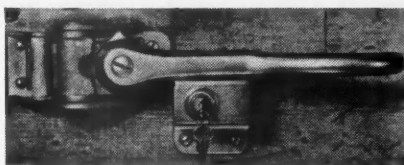
(CONTINUED FROM PAGE 34)

fuels. These valves are faced with Haynes-Stellite, a hard, wear-resisting alloy of cobalt, chromium, and tungsten.

This new valve will be distributed exclusively by the McQuay-Norris Mfg. Co. and King Quality Products Co. both of St. Louis, Mo.

Hansen Locking Device

THE new Hansen locking device was made especially for use with Hansen refrigerator door locks. It comprises a locking mem-



ber mounted on a strong, tamper-proof hasp or flange, into which is securely locked the lug of the locking handle.

The device has many key combinations. The tumbler or cylinder is removable and can be replaced with another of an entirely different key combination, should this be necessary due to loss of keys or other causes. It is made by A. L. Hansen Mfg. Co., 5047 Ravenswood Ave., Chicago.

Tru-Level Oil Controller

THE Tru-Level oil controller is a patented device which automatically maintains any desired oil level in the crankcase and replenishes the oil as it is used. This constantly maintained oil volume assures uniform oil temperatures, a very important feature of modern motor operation and maintenance. It is a product of the American Chain Co., Inc., York, Pa.

The Tru-Level oil controller is basically simple in construction and operation and requires no mechanical adjustments whatsoever, operating by gravity. As soon as the oil level in the crankcase falls below the predetermined or desired point, air enters into the "controller" through the air control tube, releasing the self-created vacuum, thereby permitting oil to flow through the oil supply tube into the crankcase until the air-control tube (placed at

EVANS N-L VENTILATING AND HEATING SYSTEMS

**Are Better Engineered
Better Manufactured
and Priced Right**

EVANS PRODUCTS COMPANY
UNION GUARDIAN BLDG.
DETROIT, MICHIGAN

Quicker STARTING



Quicker STOPPING

A FLICK of the driver's finger on a button (or a valve) at the steering wheel and the sand flows. You avoid spinning wheels and have constant traction *on even the most icy streets!*

Think of the saving in time, in mechanical equipment, and the protection against skids!

Lintern Sanders are so reasonable in cost that no operator can really afford to "take a chance" on life and property.



Ask for folder
"Seven Savings with
Lintern Sanders."
Carry your own
traction.

Lintern SANDERS

THE LINTERN CORPORATION
7960 Lorain Ave. Cleveland, Ohio

*How far
can you go with-
out changing
your oil?*



BY
INSTALLING A
**W.G.B. OIL
CLARIFIER**

Thousands of users change oil only twice a year—winter to summer and summer to winter. Install a W. G. B. Oil Clarifier and acquire

**SUPREME
SERVICE
SATISFACTION**
on Autocar Trucks as Factory
Equipment.

WRITE FOR INFORMATION TO

**W.G.B. OIL
CLARIFIER, INC.**

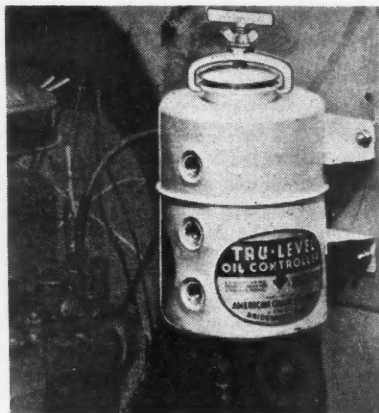
102 GREENKILL AVE., KINGSTON, N. Y.

**BLACK & DECKER
ELECTRIC VALVE SHOP**



*Rolls right up
to the car with
all tools neces-
sary for a com-
plete valve job*

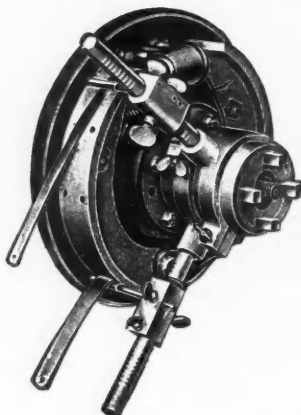
Ask your jobber, or
write: The Black &
Decker Mfg., Co.,
732 Pennsylvania
Ave., Towson, Md.



desired or correct level) is again submerged and balance again established. This operation is entirely automatic and occurs only when sufficient oil has been used or lost through motor operation to bring it below the predetermined level. The oil supply in controller is always visible through three air-tight windows and shows when device should be refilled. Two sizes are available.

Brake Micro-Gauge

A BRAKE Micro-gauge designed to take the guess work out of brake adjustments is being offered by the Wagner Electric Corp., St. Louis, Mo. This tool fits every



passenger car and truck and enables the mechanic to adjust the heel and toe of the brake shoe at the same time. It detects bent steering knuckles and bent axles, checks taper, concentricity and out of roundness of brake drums and determines actual thickness of lining necessary. Single arm unit is \$18.80 and is for axles to 1 3/4 in. OD and brake drums to 17 1/2 in.

ALGOMA

offers the two finest plywoods for truck body construction and upkeep.

ALGOMALOID—the finest of plywoods: selected veneers, resin glue bond; in panels of any desired length, widths up to twelve feet.

ALGOMETL—metal-faced plywood for side, end panels and doors; stronger than steel of equal weight, lighter than any other material of equal strength.

Send for the Algoma "Bag of Samples"

— TECHNICAL DIVISION —
ALGOMA PLYWOOD & VENEER COMPANY
BUILDERS BUILDING—228 NORTH LA SALLE STREET—CHICAGO, ILL.
FACTORY: ALGOMA, WISCONSIN

**HERCULES
OFFERS MORE
IN DUMP BODIES**



No matter what your customer requirements are you can fill them better and easier with Hercules Steel Dump Bodies and Tubeless Hydraulic Hoists.

Hercules offers a full line of bodies—all types and all sizes and several models of powerful tubeless Hydraulic Hoists.

Any user will tell you that "Hercules Dumps are better."

Distributors Everywhere

WRITE FOR NEW ILLUSTRATED LITERATURE

HERCULES STEEL PRODUCTS CO.
GALION, OHIO, U. S. A.

ALSO HERCULES SPLIT DRIVE POWER TAKE-OFFS

DeVilbiss

Spray-Painting Equipment—Spray Booths—Canopy Exhaust Systems—Exhaust Fans—Air Compressors—Hose and Hose Connections—Oil Guns.

Write for catalog

**THE DEVILBISS COMPANY
TOLEDO, OHIO**

Distributors or direct sales and service representatives available everywhere.

Watch Alma in November!

Details of the revolutionary new ALCO front drive and four wheel drive conversion units for Ford and Chevrolet trucks will be published for the first time in November.

Dealers and fleet owners desiring early information may register requests with

Alma Motor Company

884 Penobscot Bldg.,
Detroit, Michigan

THORNTON

Dual Ratio Four Rear Wheel

**DRIVE
FOR TRUCKS!**
Is setting new records!

THORNTON TANDEM CO.
Detroit

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OCTOBER, 1936

Sterling

DIESEL

MOTOR TRUCKS

Proof of Performance

There is no better proof of Sterling performance than, records from owners. Users endorse every claim made for Sterlings.

**Long Life
Economical
Dependable
Powerful**

Engineered and built for your specific requirements.

Write today

STERLING MOTORS CORPORATION
MILWAUKEE, WISCONSIN

Ahlberg Ground Bearings

40%
Saving Over New Bearing
Costs

AHLBERG BEARING CO.
Chicago

**Branches and Distributors
Everywhere**

Ahlberg Ground Bearings

Fleets keep moving

—when re-ringed
with **MOLIUM**
The new economical
positive oil control
method.
Write for details
Simplex Products Corporation
3816 Kelley Ave., Cleveland, O.

SIMPLEX
MOLIUM PISTON RINGS

Motor Tune-Up

is a real profit
and business
building ser-
vice.

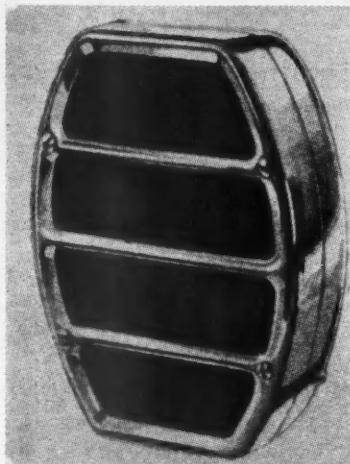
**Send for free
Tune-Up Charts**

CARTER
CORP.

CARBURETOR
2834-56 N. Spring Ave.
St. Louis

Teleoptic Turn Signal

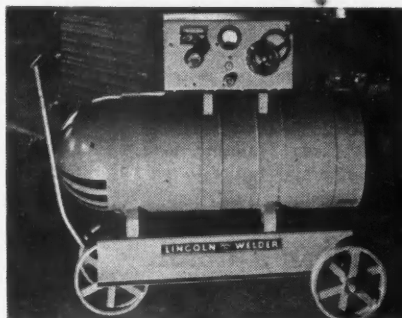
TELEOPTIC CO., Racine, Wis., offers Tell-A-Turn signals for passenger cars and truck. The heavy-duty set consists of a



combination rear lamp, a tail lamp plug, two combination fender lights, two fender brackets, a gear shift control, junction block with fuse, terminals, gear shift adapter so that the signal may be set from the gear shift handle, and wire.

Shield Arc SAE

A NEW line of single operator arc welders are available by The Lincoln Electric Co., Cleveland. These welders are known as



the "Shield Arc SAE" and will supersede the present type of "Shield Arc" which have been on the market for the last six years. The predominating feature of these new arc welders is a new method of arc control which makes possible the adjustment of both arc heat and arc penetration in a continuous sequence of fine increments. "Shield Arc SAE" welders are

WEAVER

Lo-Hi-Draulic JACKS

in sizes for every need

Ask for Catalog "O"

WEAVER MANUFACTURING CO.
SPRINGFIELD, ILL.



DON'T DRIVE BLINDFOLDED



Buy a **CASCO**
Defroster

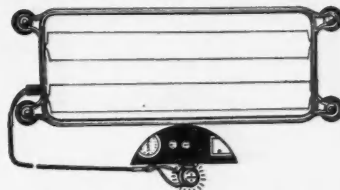
● CASCO Electric Defrosters **POSITIVELY** remove Ice—Sleet—Wet Snow under ALL conditions. They supply just enough heat at the exact place it is needed. Use very little current.

● CASCO Electric Defrosters **PREVENT FROST** from forming on the inside of windshield without use of current.

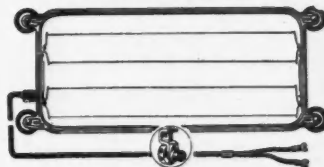
DOUBLE ASSURANCE FOR CLEAR VISION

● The quality and performance of CASCO Electric Defrosters is assured by over eight years' experience, development, and improvement.

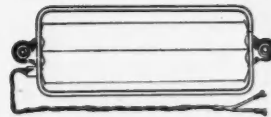
● The CASCO line includes all popular sizes and types—is complete in every detail. They are known and preferred by the trade.



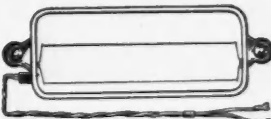
No. 51 DeLuxe Chrome with Illuminated Switch 18"x7"—\$6.00 List



No. 196 Defroster—Chrome with Illuminated Switch 16"x7". List \$5.00



No. 41 Defroster Chrome, 16"x6" List \$3.50



No. 26 Defroster—Chrome—13"x5 1/2" List \$2.25

SPECIAL FEATURES

CASCO Positive Grip Suction Cups hold securely.

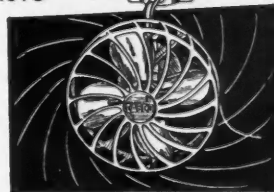
Glass set in live rubber channel.

Also Non-Electric Defrosters for side and rear windows.

CASCO

AUTO

FANS



Keep frost off inside of windshield in winter—circulate cool breeze in summer. Attach to steering post or on header board. Has an efficient, dependable motor, sturdy fan and attractively designed guard.

No. 35 DeLuxe Model \$3.75 list

No. 36 Standard Model \$3.50 list

Also Illuminated Switches for Defrosters and Hot Water Heaters, Fender Guides, Cigar Lighters.

ORDER FROM YOUR JOBBER

CASCO PRODUCTS CORP.
Bridgeport, Conn.

BURCH DUMP BODY HOIST

with
BALANCED POWER
FOR LOWERING OR RAISING

ONLY
ONE
MOVING
PART

Balanced power for raising or lowering—automatic locking, any position—one moving part—no gears—no oil lines—no heating or foaming of oil. Plain and Braced Side Bodies—1½ and 2 Yard capacities.

FAST! POWERFUL!

Write for Literature

THE BURCH CORP.
Dept. F—CRESTLINE, OHIO

THE SPECIAL honey-comb construction of the Spongex Sponge Rubber Seat Cushion for Trucks and Buses, gives exceptional riding qualities.

The total air space within the cushion is so great, that there is no "packing" of the rubber under the severest shocks. Vibration is effectively absorbed, too. Spongex Cushions have no metal in them—removing all danger of injury. They can be counted on to last as long as the vehicle in which they are installed.

For Prices and Description
Address Dept. C

**SPONGE RUBBER
PRODUCTS CO.**

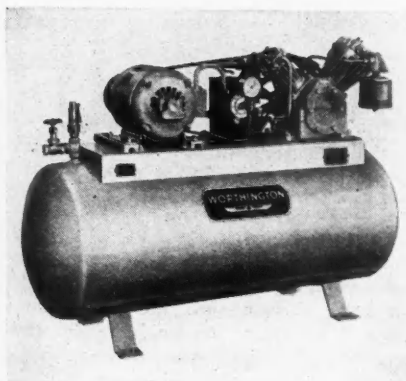
DERBY • CONNECTICUT

available in the following types and ratings: A.C. motor driven—200, 300, 400 and 600 amp; D.C. motor driven—300, 400 and 600 amp; generator for belt or couple service—200, 300 400 and 600 amp; engine driven—200, 300 and 400 amp.

Worthington Compressors

AN improved line of compressor units for garages, repair shops, and service stations is presented by Worthington Pump and Machinery Corp., Harrison, N. J.

The single-stage units are available with vertical compressors. The motor sizes range



from ¼ to 5 hp., with displacements from 1.43 to 24 cu. ft. per minute at a maximum pressure of 150 lb. per sq. in.

The two-stage units are available with angle two-stage compressors. The motor sizes range from ¼ to 10 hp., with displacements from 3.9 to 45 cu. ft. per minute at a maximum pressure of 200 lb. per sq. in.

An air pressure switch with a valve for unloading the compressor when starting or stopping is furnished on all models. Most models are available with either vertical or horizontal tanks to suit the particular installation.

Samson Autofan

BECAUSE of the scientific shape and pitch of the blades, the safe-flex Autofan delivers a greater volume of air and covers considerable windshield surface. Added to its guarantee safety feature, this electric Autofan is absolutely noiseless. The blades are of moulded rubber, rigid enough to throw sufficient air and soft enough not to injure the finger if stuck in the revolving blades.

Powered by a Delco motor, this 6-volt

DEARBORN LINE CAB-OVER-ENGINE FOR FORD TRUCKS MORE ROOM FOR PAYLOAD

Dearborn Line Cab-Over-Engine Conversions give you a whole of a lot of room for payload and more profits! Moving the cab over the engine increases the payload space of your Ford Truck by 30% to 50%. You have the payload space of a large van and retain the fuel economy and maneuverability of a small truck! See your nearest Ford Dealer or write us direct.

TRANSPORTATION ENGINEERS, Inc.
10441 SHOEMAKER AVENUE
DETROIT, MICHIGAN

Washing Costs Sharply Cut with New SPEEDWASHING

Here's today's answer to today's washing problem. Engineered to streamline standards of efficiency and economy, Rotawasher is the tested and proved way to increase washing profits and bigger business—or reduced maintenance cost on keeping your own fleet clean. That's the record of small, big and medium size users throughout the country.

The Economical Way to Clean Cars, Busses and Trucks

WRITE TODAY for Full Details

THE ROTAWASHER CORP.
Dept. CC, 118 E. St. Clair Ave.
CLEVELAND, OHIO

TIMKEN BEARING SERVICE

Use genuine Timken Bearings for replacements. Look for the name "TIMKEN" stamped on every cup and cone.

THE TIMKEN ROLLER BEARING SERVICE & SALES CO., CANTON, O.

McCORD REFRIGERATION —FUEL SYSTEM FOR TRUCKS REFRIGERATION AT NO COST —BY THE FUEL THAT RUNS THE MOTOR

McCORD RADIATOR AND MFG. CO.
DETROIT

TRADE MARK

Noc-OUT

HOSE CLAMPS
THE HOSE CLAMP WITH THE THUMB SCREW

Standard equipment of the automotive industry. Adjustable - one size equals many. Quick tightening, perfect seal. At all jobbers. Pat. No. 1,382,813.

WITTER MFG. CO.
4305 W. 24th Pl., Chicago, U.S.A.

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OCTOBER, 1936

THE ROBINSON UNIVERSAL COUPLING HOLDER

- HOLDS SECURELY
- SUPPORTS HOSE
- SEALS FROM DIRT

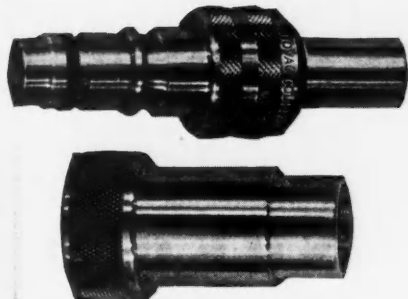
- Fits all standard type couplings. Protects male coupling from damage which destroys brake efficiency.

\$1.25 LIST PRICE



THE ROBINSON AUTOVAC COUPLER

Connected Autovac is fully open! Disconnected Autovac is tightly closed! No valve to turn off nothing left to chance. Saves time and money. Autovac protects hose lines and mechanism from water and dirt It's automatically sealed when not in use.



RELIABLE MACHINE SCREW CO.
NEWARK, NEW JERSEY

VEL-VAC SALES & SERVICE

Available in

193 cities and 48 states—

Canada and Mexico

Vacuum Power Equipment Company

1646 West Lafayette Boulevard

Detroit :: Michigan

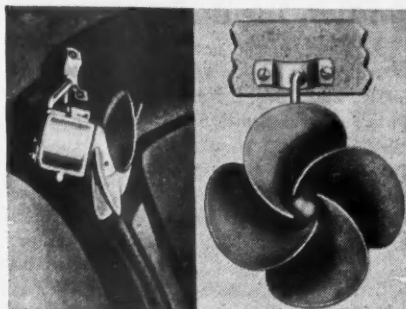
DEPENDABLE! WINDOW-WIPER

If you want air-brake dependability, write to the Hays Corporation, Michigan City, Indiana, for literature describing this new husky wiper that slashes through clogged mud or snow with the 100-lb. kick of the air-brake supply behind it.



AIR-PUSH WINDOW-WIPER

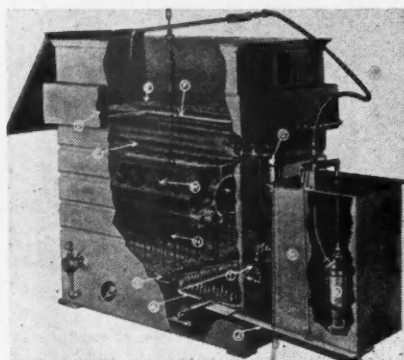
COMMERCIAL CAR JOURNAL
OCTOBER, 1936



electric Autofan retails at \$3.95, and can be quickly and easily installed on either the steering column, header board or corner post. Samson-United Corp., Rochester, N. Y.

Degreasing Machine

CIRCO PRODUCTS CO., 3088 W. 106th Street, Cleveland, offers to give a free demonstration of the Rex degreasing machine using Perm-A-Clor solvent. The solvent used in the machine may be used



over and over as the machine is devised to separate the dirt and grease from the solvent. Degreasing for most parts requires only a few minutes.

Four machines are available in sizes ranging from 15 in. wide, 19 in. long and 35 in. high to 34½ in. wide, 74½ in. long and 60 in. high. They may be operated by gas, steam or electric mediums of heating. All may be thermostatically controlled.

Amco Catalog

AMCO brake lining and clutch facing catalog number 250 is now being issued by the Asbestos Mfg. Co., Huntington, Ind. In issuing this booklet, the manufacturer has presented the subject in interesting fashion and has arranged the material so that its contents are easily located. It is bound for quick filing.

**FOLLOW THE LEADERS
for they know the way!**

**Buy
AUTOCAR TRUCKS**

**THE AUTOCAR COMPANY
ARDMORE, PA.**

Branches in 50 cities

PREVENT WINTER ACCIDENTS



install FULTON *Electric (Dual Purpose)* SLEET-FROST SHIELDS *and Forestall* ACCIDENT LAY-UPS and EXPENSE

BLIND DRIVING caused by sleet or frost covered windshields is one of the common hazards of winter driving. Why take such unnecessary chances? The Fulton Electric Sleet-Frost Shield keeps its space on the windshield clear of sleet, frost, snow and ice, at all times, regardless of weather conditions. It enables your driver to SEE where he is going, prevents serious accidents, helps maintain schedules.

Another CLEAR VISION FULTON ACCESSORY

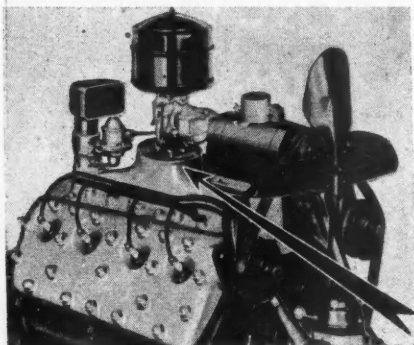
**New
Motorless
FLEX-DRIVE
FAN**



Requires no electric current or vacuum. Driven by a flexible shaft operated by fan belt. Runs at any desired speed hour after hour without draining battery or interfering with carburetor. Provides CLEAR VISION without a penny of operating cost. Economical. Efficient. Easy to install. Order TODAY from your jobber!

THE FULTON COMPANY
1912 S. 82nd ST. MILWAUKEE, WIS.

50% FUEL SAVING



That's What You Get With AMERICAN CONVERSION BURNERS

Equip a Ford or Chevrolet truck or car with an American Conversion Burner and cut your fuel costs 50% to 70%. Actual operating tests under average conditions show that the Ford V-8 which burns $5\frac{1}{2}$ gallons of 18¢ gasoline in 100 miles will do the same 100 miles on $4\frac{1}{4}$ gallons of 7¢ fuel oil.

Here are operating savings you cannot afford to overlook. You can get more miles out of the same operating dollar or more profits out of each dollar of income.

Fuel oil being slower-burning, there is naturally a small drop in power and acceleration, though experience shows it is not enough to affect operating efficiency. The great saving in fuel cost more than offsets this one difference. Idling is smooth at all times. No hard carbon is formed. Engines last longer as well as cost less to operate when an American Conversion Burner is used.

Installation is very simple. Your own shop can do it in two or three hours per engine. After that, no more than normal service. All the "bugs" have been worked out. You start making savings from the very first day. Write now for clear, complete, illustrated description. The sooner you act, the sooner savings begin.

AMERICAN CONTROL CORP.
2402 MARKET STREET, PHILADELPHIA, PA.

EXTRA PROFITS CLEANING RADIATORS!

Radiator cleaning is Profitable Business! Using Magnus Radiator Cleaner, the labor and material costs are very low. You can make more than 400% on all "shop" jobs. Sell a radiator cleaning job every time you sell anti-freeze.

Write for a copy of our Radiator Cleaning folder for full details.

MAGNUS CHEMICAL CO.
38 South Avenue Garwood, N. J.



Series 900 WALKER Hydraulic Jacks

Give you extra value features for car, truck or bus equipment and heavy duty bench work or shop jobs. One of ten sizes—capacities $1\frac{1}{2}$ to 20 tons—at left. Order from your jobber—and see the complete line of Walker Jacks for every service need.

WALKER MFG. CO.
Racine, Wisconsin

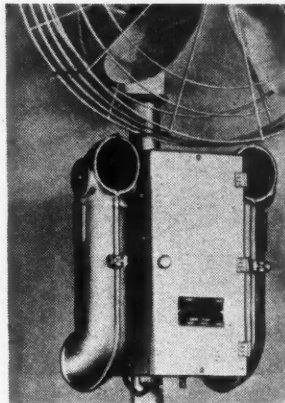
Ignition Insulation

RED INSUL is the name of liquid insulator, a product of the S. & S. Trimming Co., 250 W. 39th Street, New York City. When applied to the ignition system, Red Insul waterproofs and reinsulates all high tension current, preventing leakage. Once insulated, the motor will not stall, the manufacturer claims. The insulation is brushed on freely over wires, distributor, generator, etc. It dries in a few minutes and may be applied effectively even during rain. Price: 50 cents.

Ozone Generators

OZONE generator equipment is being offered by the Electroaire Corp., 1455 W. Congress St., Chicago. It is for use in offices and garages, particularly, where exhaust gases present a menace to health.

A typical unit is the Model F. The unit



is enclosed in an air-tight metal cabinet to which a fan is attached which syphons out the ozone and distributes it about the shop, thus purifying the air. The unit may be operated simply by plugging into a wall socket. Electroaire equipment is also available in portable units. A wide range of sizes and models are available at a corresponding range in prices.

Ammco Tools

AMMCO piston ring service tools consisting of a ridge reamer, surfacing hone and a ring file, are available for shops installing expander type piston rings.

These three highly essential tools have been developed by the Automotive Maintenance Machinery Co., 2100 Commonwealth Avenue, North Chicago, Ill. They may be bought as a combination for \$24.50, or separately.

St. Paul HYDRAULIC HOISTS & BODIES

There's a St. Paul Hoist to fit every need. Distributors conveniently located in leading distributing centers . . . stocked and ready to make prompt shipments.

St. Paul Hydraulic Hoist Co.
2207 University Ave., Minneapolis, Minn.

BE SAFE!

Your trucks need the greater safety of genuine

BERG

**POWER BRAKES
WITH
REACTIONARY
CONTROL**

for
**FORD
CHEVROLET
and INTERNATIONAL
TRUCKS**

Up to 3-Ton Pay Load, **\$18**

Above 3-Ton Pay Load, **\$25**

Why pay more? The BERG Brake has everything and is fully guaranteed. Satisfaction assured. Write at once for discounts.

Power Brakes for Pass. Cars, \$12.50

BERG BROS. MFG. CO.
4520 W. North Ave., CHICAGO

OSHKOSH

4 Wheel Drive Trucks

A proven product. $1\frac{1}{2}$ to 10 ton capacity. Write for complete information.

OSHKOSH

Motor Trucks, Inc.
Oshkosh, Wis.

VALVES, PISTONS
PISTON PINS
VALVE GUIDES
VALVE SEAT INSERTS
CYLINDER SLEEVES
PACKLESS PUMPS
CHASSIS BOLTS
TRYON SHACKLES
SILENT "U" SHACKLES
ECCENTRIC and
RUBBEROD TIE RODS
OILITE BUSHINGS



Thompson Products

HANDY

World's Largest Manufacturer of

**GOVERNORS
AIR CLEANERS
OIL FILTERS
OIL CONDITIONERS**

HANDY GOVERNOR CORPN.
DETROIT

COMMERCIAL CAR JOURNAL
OCTOBER, 1936

Safety Statistics

(CONTINUED FROM PAGE 32)

The failure of truck drivers to continue the improvement shown in the previous year accounts for the slight increase in the 1935-36 accident rate. Passenger car and bus drivers were successful in lowering their rates again. (All vehicles, +1%; Passenger car, -4%; Bus, -8%; Truck, +3%.)

THE 1935-36 records of truck drivers, on the whole, was unsatisfactory. Their average rate of 3.44 is 25 per cent above the average for all fleets and of the various types of vehicle operators, they only failed to improve their rates over 1934-35. The increase of 3 per cent in the 1935-36 rate compares unfavorably with a reduction of 8 per cent over the 1933-34 rate. This tabulation shows the record by sizes:

Size	1935-36 Accident Rate	Percentage change from 1934-35
All Fleets	3.44	+ 3%
Large	3.48	+ 1%
Middle-sized	3.18	+13%
Small	3.56	+ 9%

Of the various types of truck fleets, those engaged in inter-city hauling (all over the road haulers, including interstate and intrastate), had the best 1935-36 accident records by averaging 2.02 accidents per 100,000 miles. Rates in other types of fleets ranged upward to 6.46 for newspaper fleets.

Winners

Inter-City Bus Operations—

Large fleets—Greyhound Lines, Indianapolis, Ind.

Small fleets—Greyhound Lines, Cincinnati, Ohio.

City buses—Reading Coach Company, Lebanon, Pa.

Passenger Cars—Group I—Shell Petroleum Corp., Mid-Continent Area.

Group II—Gulf Oil Corp. of Pennsylvania, Shreveport, La.

Group III—Cities Service Oil Co., Western Avenue, Chicago.

Group IV—Shell Pipe Line Corp. of Colorado, Texas Division.

Inter-City Trucking—(taking in all interstate and intrastate over-the-road)—Large fleets—Morgan Packing Co., Austin, Ind.

Small fleets—U. S. Engineer Department, Gulf of Mexico Division.

Coal and Ice—Central California Ice Co., Selma, Reedley and Dinuba.

Bakeries—Junge Baking Co., Joplin, Mo.

Public Utilities—Large fleets—Mountain States Power Co., Albany, Ohio.

Small fleets—C. & C. Electric Light Dept., Honolulu, T. H.

Miscellaneous Manufacturing

Plants—Pittsburgh Steel Co., Monessen, Pa.

Dairies—Hind Clark Dairy, Honolulu, T. H.

Newspapers—Journal Garage Co., Portland, Ore.

Petroleum—Large fleets—Shell Petroleum, Mid-Continent Area.

Small fleets—Texas Pacific Coal & Oil Co., Ft. Worth, Texas.

City Trucking—Large fleets—Walgreen Co., Chicago.

Small fleets—J. E. Bejin Cartage Co., Detroit, Mich.

Beverages—Coca-Cola Bottling Co. of New York, Valley Stream Division.

Department Stores—Large fleets—United Parcel Service Co., Pasadena.

Small fleets—United Parcel Service Co., San Mateo, Calif.

Laundries—Oregon Dye House, New Bedford, Mass.

CONTESTANTS in the 1934-35 contest lowered previous year's rates 2 per cent in 1935-36. Reductions of 12 per cent for bus drivers and 6 per cent for passenger car operators, were offset by higher rates for truck drivers.

The rate for fleets that participated for the first time was 18 per cent above average for fleets in previous contests.



WHEN any motor vehicle is equipped with SAF-T-LOK the owner's judgment in the matter of speed is obeyed at all times and rash driving, the cause of over a million injuries and deaths each year, is impossible—for with SAF-T-LOK the maximum driving speed is governed by a fool-proof, automatic control installed on the engine and regulated by a lock on the instrument panel. In locked position the control lowers top speed to any predetermined point, without affecting power, acceleration, or hill climbing ability. Where high speed is safe, the holder of the key can attain full speed by simply unlocking the device.

Don't run the risk of having your vehicles involved in accidents resulting from the unwise use of speed—have them equipped with the Monarch SAF-T-LOK or Monarch Governors today.

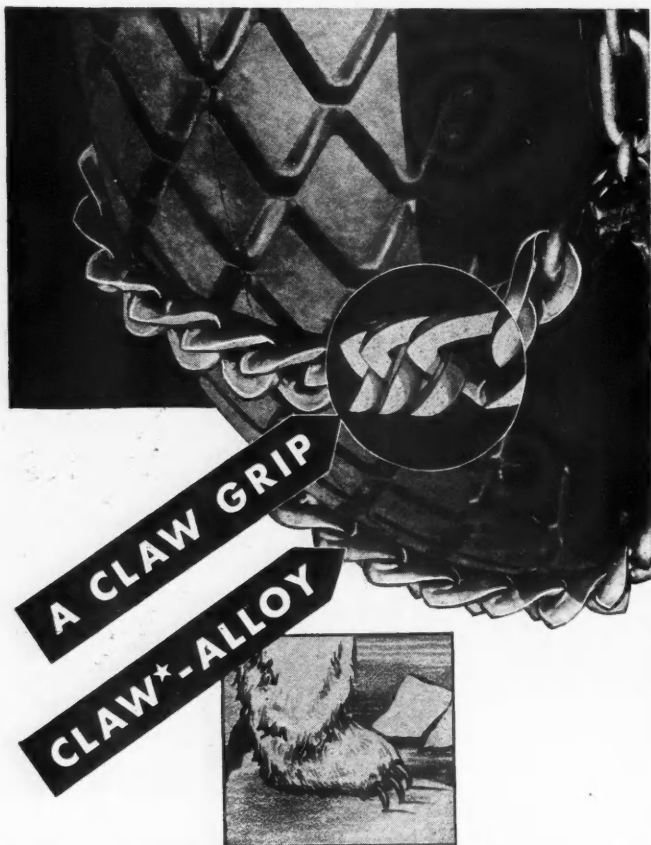
MONARCH GOVERNOR COMPANY . . . DETROIT, MICHIGAN

PROTECTS YOU AND YOUR FAMILY

Distributors in all Principal Cities



Specify **CLAW**[★] **DOUBLE DUTY** *Truck Chains*



Here's a chain that's built 100% for the kind of abuse truck chains naturally get! Truly, **CLAWS** are *double duty* chains—engineered for super grip, built for super wear.

CLAW[★] Truck Chains have that famous *extra wedge* of steel (20% more metal in every cross chain link) and it is concentrated where it can do the most good. That's why **CLAWS** effectively out-grip every other chain on the market, regardless of road conditions. *CLAW* Truck Chains just can't slip because they claw... Patented **CLAW**-alloy steel—a metal unrivalled in toughness and ability to take the constant impact of the highway—guarantees maximum chain mileage and maximum safety.

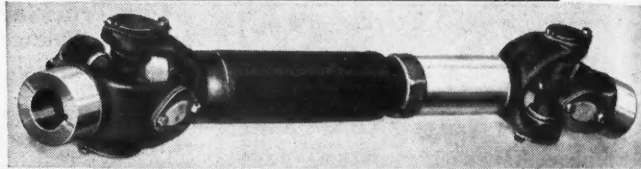
In addition to these advantages, **CLAW** Truck Chains offer the special Indented Rim Chains to prevent play and excessive breakage between cross chains and rim chains. The Improved Blue Boy Fastener snaps on instantly—can't work loose.

Specify **CLAWS**[★] and cut chain overhead to a new low. Full particulars on request.

COLUMBUS-McKINNON CHAIN CORP.
General Sales Offices: TONAWANDA, N. Y.

CLAW[★]TRUCK CHAINS

FOR LOW COST
Specify
**BLOOD
BROTHERS**



**UNIVERSAL
JOINTS**
MAINTENANCE

The successful operator can not afford to overlook even the smallest item of cost, because low maintenance may depend on a multiplicity of details.

Trucks equipped with **BLOOD BROTHERS UNIVERSAL JOINTS** have established a truly remarkable record of uninterrupted service under hard, punishing work. For road construction, snow removal and on gruelling, long distance freight hauls, **BLOOD BROTHERS UNIVERSAL JOINTS** have fully demonstrated their ability to stand up under punishment.

Fundamentally correct design, sealed lubrication, wide angularity and ample capacity for the heaviest loads insure free running, efficient operation. True running assemblies produce normal wear evenly distributed over the entire bearing area. Best alloy steels and the most accurate workmanship have been instrumental in keeping maintenance costs at the lowest possible level.

The New "SERIES N" Needle Bearing Joints

Feature:

**Simplicity
Accessibility
Adaptability
Greater Angularity
Greater Capacity**

Yoke design is such that plain yokes can be used as easily as flanges, yokes and companions at a saving in cost. Flanges, yokes and companions can be furnished however when required. The "Series N" Joints are made in four sizes: 4N—5N—6N—and 7N.

Our Engineering Department will be glad to work with you on your requirements. Write for complete engineering data or any other information you may require.

**BLOOD BROTHERS
MACHINE COMPANY**
ALLEGAN MICHIGAN

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OCTOBER, 1936